Corporate Climate Lobbying

Markus Leippold, Zacharias Sautner, Tingyu Yu*

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Abstract

A common concern is that ambitious climate policy is—at least in parts—obstructed by corporate lobbying activities. We quantify corporate anti- and pro-climate lobbying expenses, identify the largest corporate lobbyists and their motives, establish how climate lobbying relates to corporate business models, and document whether and how climate lobbying is priced in financial markets. Firms spend on average $277k per year on anti-climate lobbying ($185k on pro-climate lobbying). Recently, firms have tried to camouflage their climate lobbying activities. Large anti-climate lobbyists have more carbon-intensive business models and face more climate-related incidents in the future. Firms that spend more on anti-climate lobbying earn higher returns, probably because of a risk premium. Their stock prices went up when the Waxman-Markey Cap-and-Trade Bill failed, and down when the Inflation Reduction Act was announced.

*The corporate climate lobby data used in this paper is publicly available at https://osf.io/md2jr/. Leippold is from University of Zurich and Swiss Finance Institute, email: markus.leippold@df.uzh.ch; Sautner is from University of Zurich and Swiss Finance Institute, email: zacharias.sautner@df.uzh.ch; Yu is from University of Zurich, email: tingyu.yu@df.uzh.ch. We would like to thank seminar participants at the CEPR Webinar on Climate Policy and the Role of Finance, University of Mannheim, Chinese University of Hong Kong, the 2024 IFFR/EBRD Conference on ESG for Banks, Firms and Institutional Investors: Advances and Challenges, the SFI Research Days 2024, and the CEPR-ESSEC-Luxembourg Conference on Sustainable Financial Intermediation. This paper has received funding from the Swiss National Science Foundation (SNSF) under the project 'How sustainable is sustainable finance? Impact evaluation and automated greenwashing detection' (Grant Agreement No. 100018_207800).

1 Introduction

Climate change requires regulatory action to limit the increase in global temperature to internally agreed levels. Despite this necessity, most countries' climate efforts are insufficient, with significantly more action needed to cut carbon emissions, transition to renewable energy sources, or stimulate green innovation. A common concern is that more ambitious climate action, at least in parts, is obstructed by firms' lobbying activities. Such activities seek to influence politicians or policymakers to undermine, delay, or avoid pro-climate regulations or policies. For that reason, some argue that anti-climate lobbying should be labeled as Scope 4 emissions to reflect that firms lobbying against stricter policies impact climate change more negatively than their Scope 1, 2, or 3 emissions would indicate.

Typically, corporate lobbying occurs behind the scenes, sometimes colliding with a firm's public commitments to combat climate change. This discrepancy can create a disconnect between what a firm says about climate action and how it actually lobbies on climate issues.[1] In the 2022 proxy season, manifestations of such misalignment were a key issue raised by activist investors, and climate lobbying also emerged as a major topic of concern in shareholder engagement (Ceres, 2022; ClimateAction100+, 2023). Several investors and investor groups started publishing expectations on climate lobbying activities for their portfolio firms, including guidance on the goals, scope, and transparency of such activities (e.g., PRI, 2022).

Corporate lobbying against climate action is not a sideshow but has real effects on climate action by countries (Meng and Rode, 2019; Brulle, 2018). For example, corporate lobbying and various lawsuits in 2015 and 2016 had a major impact on the failure of the U.S. Clean Power Plan, which contained standards to reduce emissions. Further, auto industry lobbying arguably compromised climate rules on vehicles in the U.S. and EU. There is also evidence on video of how an ExxonMobil lobbyist said that the firm had fought climate science through

[1]For example, ExxonMobil, Glencore, and Stellantis, among others, made public statements to become greener (e.g., through net-zero pledges), but in silence conducted lobbying against climate action (InfluenceMap, 2023). Similarly, the Business Roundtable, a major U.S. corporate lobbying group, publicly supported the fight against climate change while silently lobbying against stricter regulation (Lowenstein, 2022).

"shadow groups" and targeted influential senators to weaken President Biden's climate proposals (Tabuchi, 2021). Gao and Huang (2024) show that U.S. Congress members who receive large campaign contributions from carbon-emitting firms are more likely to cast climate-skeptic votes. The social costs associated with climate lobbying are potentially large. Meng and Rode (2019) calculate that such lobbying lowered the probability of enacting the (eventually failed) Waxman-Markey Cap-and-Trade Bill by 13 percentage points, representing a social cost of $60 billion. That said, climate lobbying is not necessarily only anti-climate, and pro-climate lobbying may counter attempts to obstruct or even encourage stricter legislation.

Understanding corporate climate lobbying is important, given its significant role in the ultimate success of tackling the global climate crisis. In this paper, we comprehensively analyze the climate lobbying activities of publicly listed U.S. firms from 2001 to 2022. We quantify corporate anti- and pro-climate lobbying expenses, identify the largest corporate lobbyists and their motives, establish how climate lobbying relates to corporate business models, and document whether and how climate lobbying is priced in financial markets. We identify lobbying expenses at the federal level, which account for 70% of total lobbying expenses since 2015 at the combined federal and state levels (OpenSecrets, 2024).[2]

We construct lobbying measures from quarterly lobbying reports, which are required by law and filed by in-house corporate lobbyists or external lobbying firms. The construction comprises two steps. In step one, we identify those reports that address climate-related topics and then measure the associated lobbying amounts. Climate-related lobbying is identified based on a classification of the lobbying "issues" listed in a report (one report may contain multiple issues). An issue is classified as "climate-related" if its description contains climate-related keywords or relates to climate-related bills. Climate-related issues feature in 25,394 (or 10%) of the 250,598 reports filed by our sample firms. We quantify the associated dollar amounts of climate lobbying by proportionally allocating the total lobbying expenditures

[2]While the Lobbying Disclosure Act of 1995 mandates transparency for federal lobbying efforts, most states lack comprehensive disclosure laws, making it difficult to comprehensively measure lobbying expenses at the state level (only 19 out of 50 states provide meaningful data).

listed in a report across the issues included (there is no data on issue-level spending).

In step two, we differentiate between pro- and anti-climate lobbying, leveraging data from the Federal Election Commission (FEC) on campaign contributions by a firm's executives and its hired lobbyists. We calculate whether these individuals' contributions go primarily to the Republican or Democratic Party, maintaining that a firm's lobbying is anti-climate (pro-climate) if its executives or lobbyists donate primarily to Republicans (Democrats).[3] This approach to identifying the direction of lobbying follows Kwon et al. (2024), discussed in more detail below, who use contributions by corporate lobbyists to identify pro- and anti-environmental lobbying. Our approach differs in that we also consider contributions by executives. Our inference is based on two plausible assumptions: (i) the climate stance of executives is informative about the climate stance of their employers (and likewise for the lobbyists servicing a firm); and (ii) firms with executives (or lobbyists) donating predominantly to the Republican Party—characterized by its more conservative climate actions and regulations—undertake more anti-climate lobbying; conversely, firms with associated individuals supporting the Democratic Party—recognized for a more pro-climate leaning agenda—engage in more pro-climate lobbying. We provide evidence supporting each of these assumptions. Finally, we aggregate these numbers across all quarterly lobby reports of a firm, incorporating the fact that some firms work with multiple lobbyists. Some of our tests aggregate the measures further at the firm-year level, to smooth seasonal variation.

Building on our newly created metrics, we provide a detailed anatomy of corporate climate lobbying in the United States. We observe anti-climate lobbying in 10.6% of firm-years and pro-climate lobbying in 8.5% of firm-years. On average, spending on anti-climate lobbying amounts to \$277k per year and pro-climate lobbying to \$185k (both at the intensive margin for firms that climate lobby).[4] As would be expected, climate lobbying expenses were

[3] As firms are not required to disclose their climate stances in the lobbying reports, we need to infer it. We use contributions by executives and lobbyists because *corporate* political donations are much less informative about a firm's climate stance (they rarely donate to just one party).

[4] For comparison, average annual lobbying expenses by firms with executives or lobbyists that exclusively contribute to the Republican (Democratic) Party, irrespective of whether the expenses are climate-motivated,

minimal before 2006, reflecting limited corporate and societal awareness of climate change issues and few related bills or regulations. From 2008 to 2010, both lobbying types increased considerably, coinciding with a significant surge in climate legislation (e.g., the American Clean Energy and Security Act). Expenditures dropped after 2010, though anti-lobbying exceeded pro-lobbying consistently and peaked again in 2014. The years from 2017 to 2019, under President Trump, saw the least climate-related lobbying activity, likely due to his explicit opposition to climate action. In 2022, climate lobbying reached a sudden new peak, largely related to President Biden's administration, which increased the likelihood of stringent climate regulations and stimulated efforts to support climate action.

From inspecting lobbying reports, we observe a notable recent trend to camouflage climate lobbying, particularly among firms engaging heavily in such lobbying. Instead of explicitly mentioning the climate issues of concern, some firms increasingly refer in the issue description only to bill titles or abstract bill codes. Especially bill codes are not immediately identifiable as climate-related, highlighting the importance of identifying lobbying not solely based on text descriptions. A case in point is FedEx Corp. In 2009, the year of the American Clean Energy and Security Act, the transportation giant spent \$5.3m (out of \$18.7m) on anti-climate lobbying, with 58% of the amount being identifiable through keywords, and 59% through keywords and bill titles. In 2022, these detectable proportions dropped to only 4% and 34% (FedEx spent \$1.3m out of \$12.7m on anti-climate lobbying that year). All remaining anti-climate lobbying expenses can only be detected using bill codes and bill titles, or using bill codes only. Camouflaging is more widespread among firms that initiate lobbying activities or change their stance from anti- to pro-climate (the latter effect is marginally insignificant). Perhaps in response to this trend, investors increasingly worry about a lack of transparency in corporate climate lobbying.[5]

amount to \$521k (\$389k).

[5]For example, in its climate change expectations, Norges Bank Investment Management states that "companies should be transparent about where they advocate for specific policy and legislative support" (Norges Bank Investment Management, 2023).

Anti-climate lobbying is highly concentrated, with Petroleum & Natural Gas firms and Utilities spending the largest total amounts (around $232m per sector, from 2001 to 2022). Pro-lobbying is more dispersed across sectors. Interestingly, the Utility sector also ranks highest based on the aggregate amount of pro-climate lobbying, followed by Automobiles & Trucks, Computer Software, and Electronic Equipment. The top five corporate anti-climate lobbyists are Southern Company, ExxonMobil, Chevron, BP, and American Electric Power, and the largest pro-climate lobbyists are PG&E, General Motors, Calpine, Covanta Energy, and Microsoft. The aggregate spending by the largest corporate anti-climate lobbyist, Southern Company, amounts to about $88m (60% more than the pro-lobbying amount of PG&E).

Besides direct lobbying, some firms leverage trade associations for lobbying purposes, whose activities obscure individual companies lobbying efforts.[6] It is therefore important to ensure that our results are unaffected when accounting for such indirect lobbying (we calculate that these indirect expenses amount to about 32% of direct anti-climate lobbying expenses).

To understand the motives behind climate lobbying, we evaluate whether lobbying activities relate to firm-specifics deemed important for the net-zero transition. As climate lobbying varies with firm size, we employ a firm's climate lobbying intensity (lobbying expenses scaled by assets). We start with exploring how lobbying relates to proxies for the risks and opportunities posed by climate change. First, we evaluate the role of carbon emissions, a measure of climate transition risks, and second, we consider green innovation, a proxy for climate-related business opportunities. Firms with more carbon-intensive business models spend significantly more on anti-climate lobbying. On the contrary, higher pro-climate expenses are associated with more green innovation, captured using green patent intensity (green patents over all patents) as well as green innovation discussions in earnings calls.

The Utility sector stands out as it ranks high for both anti- and pro-climate lobbying,

[6]Trade associations pool resources of individual firms. InfluenceMap (2024) document how oil industry associations promote science-contradicting narratives to hinder renewable energy and electric vehicles. Firms are paying substantial fees to participate in these associations. For example, Shell and Chevron each pay nearly $10m per year for membership in the American Petroleum Institute.

reflecting large variation in business models within this sector. Specifically, the sector is heterogeneously affected as the economy moves away from fossil fuels because firms vary in how reliant they are on different electricity generation fuels. To understand how this heterogeneity in transition risk affects lobbying, we analyze granular power-plant-level data on firms' electricity generation sources. We establish that firms that primarily use coal and gas as sources conduct significantly more anti-climate lobbying. On the contrary, heavy reliance on nuclear energy correlates with increased pro-climate lobbying (in the EU, nuclear energy is classified as a green activity according to the Taxonomy for Sustainable Activities). These differences highlight the importance of dissecting lobbying activities within a sector. Somewhat unexpectedly, firms using renewable energy heavily do not spend more on pro-lobbying.

Firms may undertake anti-climate lobbying to avoid regulatory costs associated with climate-related incidents, or to prevent costly future climate regulation, especially when emissions are expected to grow. To examine these possibilities, we relate firms' environmental performance in the next year to climate lobbying in the current year. More anti-climate spending is associated with more climate-related incidents, with results being stronger if we account for the severity of the incidents. An interpretation is that some anti-lobbying occurs in anticipation of climate-related incidents, with lobbying firms trying to create political capital to reduce any regulatory backlash. Further, anti-climate spending positively correlates with higher future carbon emissions, after accounting for current emissions.

Having documented determinants and associated motives of climate lobbying, we address whether investors care about such activities when pricing stocks. This is plausible, especially during the more recent years, given the attention paid by major investors to the topic (PRI, 2022). As stressed by Sustainalytics (2023), a major ESG rating agency, anti-climate lobbying can constitute an investment risk by damaging trust or leading to "name and shame" actions (reputation risk), and by leading firms to not adjust business models fast enough in the hope that lobbying succeeds (transition risk). Anti-climate lobbying may also signal regulatory risk, with firms undertaking more lobbying if they face more climate regulatory uncertainty

(a transition risk dimension). We find that firms with more anti-climate lobbying earn higher future returns, while pro-climate lobbying is unrelated to returns.[7] These effects arise only in the second part of our sample (2010-2022), not in earlier years (2002-2009). A one-standard-deviation increase in anti-climate lobbying is associated with 0.32% higher monthly returns, or 3.85% annually (t-statistic of 5.92). The effect does not reflect a carbon risk premium, as we show by directly controlling for carbon emissions (or intensities) in the estimation. The return effects of anti-climate lobbying become larger when indirect climate lobbying through trade associations is included in the measure.[8] We also verify that our measures, as well as the detected return effects, do not simply reflect firms' political connection.

Two channels may explain why climate lobbying and returns relate positively. In line with previously mentioned investor views, the first channel holds that anti-climate lobbyists are perceived as riskier, leading investors to demand a risk premium. A second channel holds that firms with large anti-lobbying expenses generate unexpectedly higher earnings, leading to earnings surprises and higher future returns. Earnings surprises may arise if anti-climate lobbying is successful and unexpectedly leads to less stringent regulation or lower regulatory costs.[9] However, this channel is inconsistent with our data: sample firms with larger anti-lobbying expenses do not experience higher earnings surprises. It is also hard to reconcile with our evidence that the higher returns originate from more recent years only (as it is unclear why unexpectedly higher earnings would only materialize since 2010).

To corroborate the risk-premium channel further, we analyze the returns of lobbying firms around two important and arguably surprising climate-related policy events. If the return dynamics reflect a risk premium, then—from an equilibrium perspective—the stock prices

[7] We follow Bolton and Kacperczyk (2021, 2023) or Garel et al. (2024) and employ cross-sectional regressions using a characteristic-based approach by relating individual firms' returns to their climate lobbying expenses. Results from portfolio sorts based on climate lobbying measures generate consistent return patterns.

[8] Our main tests focus on direct lobbying because the calculations of indirect lobbying expenses require significantly more assumptions due to the more opaque nature of the underlying data.

[9] This channel requires *unexpectedly* higher earnings, as higher earnings as such should be capitalized in a stock's market value and not be associated with higher returns.

of anti-climate lobbyists should be bid down (bid up) around major events that increased (decreased) investor beliefs about climate-related regulation (Bolton and Kacperczyk, 2021). Lobbying-related risks would, in turn, be impounded into stock prices, as lower (higher) prices imply higher (lower) expected returns. Identifying all of these events is difficult, but the repricing dynamics—if they exist—should be present around two major policy-related events that unexpectedly shifted investor beliefs.

The first event was when Republican Senator Lindsey Graham unexpectedly dropped support for the Waxman-Markey Bill on April 23, 2010, which would have significantly changed U.S. climate policy by establishing a national cap-and-trade system.[10] The second event is the announcement of the Inflation Reduction Act (IRA) on July 27, 2022. The IRA constitutes the most ambitious and comprehensive U.S. climate change legislation, aiming for a 41% reduction in U.S. emissions by 2030. This goal substantially heightened uncertainty about costly regulatory changes for some firms, especially those reliant on fossil fuels. At the same time, the IRA also allocated $370b towards climate-related expenditures and tax credits, favoring firms that benefit from the green transformation. For the Waxman-Markey Bill, event study returns show that firms with higher anti-climate lobbying expenses outperformed other firms. In contrast, pro-climate lobbyists saw a decrease in stock prices. Estimates for the IRA are exactly the opposite. These return dynamics are consistent with a risk-premium channel: The prices of anti-climate lobbying firms are bid down (bid up) around major events that increase (decrease) investor beliefs about climate-related regulatory uncertainty.

Our research is connected to the literature on ESG/CSR and political leanings. Most related to us is recent work by Kwon et al. (2024), who study corporate environmental lobbying. They examine how this lobbying interacts with firms' green innovation, current business operations, and market power, and they investigate how it relates to firms' environmental incidents and ESG ratings. We complement their approach to measuring lobbying and examining its effects. For example, while they focus on contributions by lobbyists to

[10]The failed bill is also used as an exogenous shock in Meng (2017).

identify the political stance, we also consider executives. Further, we identify only climate lobbying, while they instead focus on broader environmental lobbying. In terms of content, Kwon et al. (2024) provide a detailed examination of the green innovation-lobbying nexus while we consider (also) other lobbying motives and examine financial market effects. In the broader ESG/CSR context, Di Giuli and Kostovetsky (2014), Eichholtz et al. (2009), and Gupta et al. (2016) show that Democratic-leaning corporate stakeholders are more inclined towards CSR practices.[11] Fich and Xu (2023) demonstrate that "involuntarily" green firms increase political donations to traditionalist politicians, affecting stock returns.

Regarding the influence and impact of lobbying on climate legislation and policies, Heitz et al. (2023) find less environmental enforcement and lower penalties for politically connected firms. Lantushenko and Schellhorn (2023) document intensified lobbying by fossil fuel firms in response to climate risks since 2013. Paul et al. (2017) and Brulle (2018) discuss the significant influence of lobbying on climate change legislation.[12] Meng and Rode (2019) and Delmas et al. (2016) also examine the impact of lobbying on climate policies, highlighting the reduced likelihood of policy enactment and a U-shaped relationship between emissions and lobbying expenditures. However, they do not separate the role of pro- and anti-climate lobbying. Kang (2016) quantifies the impact of energy firms' lobbying on policy enactment. Rendina et al. (2023) examine how firms respond to environmental concerns through clean innovation and environmental lobbying, suggesting these strategies are complementary. Instead of assessing the role of lobbying on policy outcomes, we quantify and characterize corporate anti- and pro-climate lobbying and examine how such lobbying is priced in financial markets.

[11] Bansal and Roth (2000) and Rubin (2008) discuss motivations for CSR, including competitiveness and ecological responsibility, and correlate political beliefs with CSR ratings.

[12] Gullberg (2008) and Vesa et al. (2020) delve into the strategies of environmental and business organizations, noting the economic competitiveness prioritization by business organizations. Clark and Crawford (2011) and Johnston (2010) add a corporate perspective, linking firms' environmental performance to political engagement and to questioning the prevailing climate narrative. The identification of anti- and pro-climate lobbying differentiates our approach from this body of work (e.g., Brulle, 2018).

2 Data Sources and Sample Construction

2.1 Data on Lobbying Reports

Our analysis of corporate lobbying expenses builds on all 1,235,401 quarterly U.S. lobbying reports from 2001Q1 to 2023Q1 (all cross-sectional tests use data until 2022). We download these reports from OpenSecrets, a nonprofit that publishes data on lobbying and campaign finance. OpenSecrets can collect these data as external lobbying firms, who lobby on behalf of a client, and in-house lobbyists are required to file lobbying reports. These reports have to contain the client names (if lobbying firms do the lobbying), the issues lobbied on, the houses of Congress and federal agencies contacted, the individual lobbyists involved, and the lobbying amounts.[13] For lobbying firms, the reported lobbying amounts include the income received by lobbying firms from their clients. This encompasses fees paid by clients specifically for lobbying efforts, and it may also include services such as research and communication with government officials. For firms with in-house lobbyists, the reported amounts include the portion of salaries for staff engaged in lobbying, along with other costs directly related to lobbying. Reports for the first calendar quarter (Q1) are due on April 20, covering January 1 to March 31. Similarly, Q2, Q3, and Q4 reports are due on July 20, October 20, and January 22, respectively. Typically, the reports are available for public viewing within a few days of submission. We focus on lobbying at the Federal level.

Our initial sample covers 59,979 clients and 1,235,401 lobbying reports. Out of the total number of clients, 53,242 clients submitted 1,046,506 reports through 7,634 external lobbying firms, and 6,858 clients filed 188,895 reports via in-house lobbyists.[14] Some firms file multiple reports simultaneously as they work with multiple lobbying firms (e.g., AT&T regularly files

[13]The Lobbying Disclosure Act (LDA) of 1995 mandates that lobbying firms register with the Clerk of the House Representatives and the Secretary of the Senate if they aim to influence federal legislative decision-making. Firms were required to submit semi-annual reports before 2008. For simplicity, we refer to a quarterly frequency throughout (most of our tests aggregate data at the annual frequency; we explain below how we account for the semi-annual frequency when using quarterly data).

[14]Some firms show up as clients in both numbers (they have in-house and external lobbyists).

over 20 reports per quarter). We consolidate client reports at the firm level in the next steps.

We match client names with Compustat North America using exact name matches or, if unsuccessful, with fuzzy matching (FuzzyWuzzy) plus a manual verification. As detailed in Table IA A1, Panel A, of the 59,979 clients in OpenSecrets' lobbying reports, 5,586 are listed firms, of which 4,036 are U.S.-listed firms. Table IA A1, Panel B, shows that among the 1,235,401 lobbying reports in our initial sample, 250,598 are from U.S.-listed Compustat firms.

2.2 Data on Campaign Contributions

To differentiate between pro- and anti-climate lobbying, we collect data on individual campaign contributions by corporate executives and lobbyists from the FEC website. Federal U.S. law requires all political committees, including candidates' campaign committees, Political Action Committees (PACs), and party committees, to report to the FEC the contributions they receive.[15] The FEC data include information on the donors' employers and their occupations (e.g., CEO or lobbyist), which allows us to link the names of the individuals to Compustat firms. We use the matching approach from above to link individual and employer names to Compustat firms and lobbying reports.

2.3 Other Data Sources

Carbon emission data is obtained from Trucost (2005-2020), data on green innovation are from the United States Patent and Trademark Office (USPTO) and Leippold and Yu (2024) (2002-2022), data on electricity generation sources come from the Energy Information Ad-

[15] Our analysis focuses on direct contributions to candidates and parties. Direct campaign contributions originate from committees and individuals, with individuals typically being the major contributors. For example, about 85% of Donald Trump's presidential campaign funding from November 2022 to September 2023 came from individuals. Firms can also form affiliated PACs to collect voluntary contributions and then donate those funds to support or oppose candidates or political parties. Unlike individuals who often make most of their contributions to one party, PACs commonly distribute their contributions strategically across both parties as a hedging tactic. We exclude Super PACs as they follow different rules and represent a more recent development in campaign finance after the 2010 U.S. Supreme Court decision. Fich and Xu (2023) and Akey (2015) also exclude Super PACs because of their higher complexity and lower transparency.

ministration (EIA) (2001-2022), and data on climate incidents are from RepRisk (2007-2022). We utilize monthly stock returns from CRSP for firms traded on NYSE, AMEX, and NASDAQ. Accounting data come from Compustat Fundamentals Annually (2001-2022).

3 Quantifying Corporate Climate Lobbying

3.1 Measuring Climate Lobbying Amounts

We develop several measures quantifying corporate climate lobbying. In step one, we identify climate-related lobbying by classifying the specific "issues" addressed in a lobbying report. Each lobbying report contains a description of the lobbying activities at the issue level.[16] To classify an issue as "climate-related," we analyze the text of the issue description and the bills mentioned therein. An issue is climate-related if its description contains at least one climate-related keyword or if the issue relates to a climate-related bill.[17] Climate-related issues feature in 25,394 or 10.1% of the 250,598 reports of our sample firms (Table IA A1, Panel B). Of the 2.3 lobbying issues addressed in the average report, 0.17 (7.2%) are climate-related.

Having identified climate-related issues, we quantify the associated lobbying expenses. Data on the money spent on *individual* lobbying issues is unavailable. Therefore, to calculate a firm's quarterly climate lobbying expenses, we proportionally allocate the total lobbying expenditures mentioned in a report based on the number of climate issues (relative to all issues in the report). This allows us to calculate the climate lobbying amount in the report

[16] OpenSecrets lists each issue with an issue ID, an issue description, and the associated bills.

[17] Our list of climate keywords encompasses the following terms: climate change, global warming, greenhouse gas, carbon emission, cap and trade, low carbon, carbon pricing, carbon capture, carbon tax, methane emission, renewable energy, clean energy, renewable electricity, climate mitigation, climate adaptation. We identify these keywords from those climate-related keywords in Sautner et al. (2023) that are most related to climate lobbying. Bills are proposals introduced by a member of Congress to create new laws or substantially modify existing ones. Climate-related bills are identified based on whether a bill's title or sub-titles feature any predefined climate keywords. We identify 2,802 climate bills (out of 221,861 bills). Our data source for bills is Congress.gov.

r that is filed by firm i or its external lobbyists in quarter q of year t as:

$$ClimateLobby_{r,i,q,t} = \frac{N_{r,i,q,t}^{Climate\ Issue}}{N_{r,i,q,t}^{Issue}} \times LobbyAmount_{r,i,q,t},$$

where $LobbyAmount_{r,i,q,t}$ is the lobbying expense of report r related to firm i in quarter q of year t, $N_{r,i,q,t}^{Climate\ Issue}$ is the number of issues containing climate keywords or bills in report r, and $N_{r,i,q,t}^{Issue}$ is the total number of issues in report r.

For comparison, we construct an alternative measure, $ClimateLobby_{r,i,q,t}^{Text}$, for which we classify an issue as "climate-related" if the associated text description includes any of the predefined climate keywords (i.e., we ignore bill titles and bill codes). This measure allows us to illustrate that a prose-based measure underestimates the actual extent of climate lobbying.

3.2 Measuring Political Stance of Climate Lobbying

In step two, we distinguish between pro- and anti-climate lobbying, following a similar approach in Kwon et al. (2024). Firms are not obligated to reveal their positions on climate issues in their reports, such as whether they lobby for or against specific legislation. Hence, we must deduce their climate stances indirectly, which we accomplish by analyzing the campaign contributions made by a firm's executives or their hired lobbyists to the Republican or Democratic Party. We use these individuals' contributions because political donations through corporate-affiliated PACs are comparatively less informative about a firm's climate stance as they rarely donate to just one party.[18] As we show below, this is very different for executives—even after aggregating donations across executives within the firm—and also for lobbyists.

We make two assumptions. First, the climate stance of executives is informative about the climate stance of their employers (and likewise for lobbyists who service a firm). Second, firms with executives (or lobbyists) donating predominantly to the Democratic Party, rec-

[18] We calculate that less than 20% of the 1,384 U.S.-listed firms and 1,053 trade associations that both lobby and donate to parties directed their donations (over the past three years) exclusively to a single party.

ognized for its pro-climate leaning agenda, do more pro-climate lobbying. Conversely, those firms whose associated individuals support the Republican Party engage in more anti-climate lobbying, as Republicans are characterized by a relatively more conservative climate stance.

Both assumptions are plausible. In support of the first assumption, Kempf et al. (2023) shows that executive teams are increasingly partisan, and executives misaligned with the political majority of their teams are more likely to leave (over disagreement on how the firm is run). We can illustrate the second assumption by comparing ExxonMobil and General Motors (GM). Executives at ExxonMobil, a firm known for its rather questionable climate stance and limited climate action, donated about $991k (97%) to Republican candidates and only $34k to Democrats (3%) since 2010. In contrast, executives from GM, with an increasingly pro-climate positioning, contributed $30k (22%) to Republicans and $106k (78%) to Democrats.[19] This example supports our assumptions and holds more broadly. Furthermore, Di Giuli and Kostovetsky (2014) show that firms headed by Democratic-leaning CEOs (who donated all past campaign contributions to Democrats) exhibit higher CSR performance, of which climate performance is a part, relative to firms led by CEOs who donate to Republicans.

Republican (Democratic) congress members tend to be more anti-climate (pro-climate)— part of the second assumption— is also plausible and demonstrated in Figure IA A1. In the figure, we analyze League of Conservation Voters (LCV) scores for politicians from both parties. LCV scores range from zero to one, with higher scores reflecting a stronger pro-environmental stance.[20] Figure IA A1 shows a stark contrast between the two parties' LCV scores for House Representatives (Panel A) and Senators (Panel B): while the average scores for Democrats are always higher than 0.8, almost all the values for Republicans are below 0.2.

[19]There is evidence that ExxonMobil engages negatively in several climate policy streams, declines to participate in the CDP Climate Change Survey since 2018, and advocates for the continued role of fossil fuels in regulations. Its CEO, Darren Woods, supported policies to encourage investment in oil and gas in a testimony to the House Committee on Energy and Commerce in April 2022. Their lobbyists also conceded that the firm targeted senators to weaken President Biden's climate proposals. In contrast, GM actively supports measures to accelerate the electrification of road transport. Mary Barra, its CEO, stated in 2020 that "Climate change is real. That is indisputable, and we take the challenges it presents seriously."

[20]The scores are constructed by tracking the voting records of all Congress members on critical environmental, climate, or environmental justice legislation. See www.lcv.org/work/congressional-scorecard/0.

Building on these assumptions, we determine the stances of the lobbying reports based on the campaign contributions by executives or lobbyists to either the Democratic or Republican Party. We primarily employ donations by executives, but in cases where executive contribution data is unavailable or inconclusive, we rely on donations by a firm's lobbyists. Out of the 11,868,258 individual contributions from employees of U.S.-listed firms in the FEC database, 703,415 are from executives, and 178,696 clearly indicate the recipient's party (we use this subset only as it allows us to obtain a clear and robust measure).[21]

Figure 1, Panel A, displays the distribution of political contributions to the Democratic and Republican parties from executives or lobbyists (we aggregate donations from executives of the same firm in a year). In the figure, we present the proportion of contributions to the Democratic Party relative to all contributions (based on the total donations over the previous three years); hence, the values range from 0 (all to Republicans) and 1 (all to Democrats). As is visible from the figure, the vast majority of executives (63%) support only one party: specifically, 35.4% donate only to the Republican Party, and 27.6% exclusively to the Democratic Party. Based on this striking feature, we attribute a stance to a lobbying report by assuming that the report is anti-climate if the executives associated with the firm primarily donate to the Republican Party and pro-climate if they donate primarily to the Democratic Party.[22]

If executives do not contribute to political parties or do not donate more than 75% of their contribution to a single party, then we assign a stance to a report based on its lobbyists. In Figure 1, Panel B, we depict the distribution of donations by 3,947 lobbyists. Similar to executives, the vast majority, 3,524 or 89% of lobbyists, exclusively support one party, roughly

[21] In the FEC database, individuals can contribute to political candidates, political parties, PACs (which can be connected to organizations like corporations or unions, or can also be independent), Super PACs, and some other groups. We only unambiguously know the political party information for donations to political candidates and parties; in other cases, it is often unknown. Figure IA A2, Panel A, plots the total contributions from these executives to the Democratic and Republican parties over the last 20 years. Figure IA A2, Panel B, reports the corresponding numbers for lobbyists.

[22] To have a robust measure, we require that the executives as a team allocate at least 75% of their donations over the past three years to a single party. We further require that they donate over $1,000 as a team. We exclude from the analysis the remaining firm-years where contributions to a single party are lower than 75% (even if the firms have lobbying expenditures). Our results are similar if we replace the three-year requirement with two-year or one-year requirements, which put more weight on recent donations.

equally splitting between the Democratic and Republican parties. We require that lobbyists donate more than 75% of their historical contributions to a single party, which is the case for 3,728 lobbyists. Further, at the report level, we require that over 50% of a report's lobbyists make contributions, and all of them donate to the same party (the average lobbying report lists 2.65 lobbyists).

Across the 250,598 lobbying reports in the sample, we can then identify the political stance for 148,411 reports (Table IA A1, Panel B). Out of those, 81,352 reports are associated with the Republican Party and 67,059 with the Democratic Party. We determine the political leaning for 70.4% of lobbying reports based on executive contributions; these reports account for 85% of the total reported lobbying expenditures in the sample.[23] Hence, the inclusion of data on executive contributions to identify the stance of climate lobbying is important. For the subset of 25,394 reports with climate lobbying, we can link 15,084 reports to a political leaning: 8,028 reports are linked to the Republican Party ("anti-climate"), and 7,056 reports to the Democratic Party ("pro-climate").

In terms of the amounts associated with anti- and pro-climate lobbying, we can then calculate the following two measures for report r of firm i in quarter q of year t:

$$ClimateLobby^{Anti}_{r,i,q,t} = ClimateLobby_{r,i,q,t} \times \mathbb{1}_{[RepParty_{r,i,q,t}]}$$
$$ClimateLobby^{Pro}_{r,i,q,t} = ClimateLobby_{r,i,q,t} \times \mathbb{1}_{[DemParty_{r,i,q,t}]},$$

where $ClimateLobby^{Anti}_{r,i,q,t}$ and $ClimateLobby^{Pro}_{r,i,q,t}$ are the anti- and pro-climate lobbying expenses in report r of firm i in quarter q of year t, respectively. $ClimateLobby_{r,i,q,t}$ is the total climate lobbying expense in the report r, and $\mathbb{1}_{[RepParty_{r,i,q,t}]}$ ($\mathbb{1}_{[DemParty_{r,i,q,t}]}$) is an indicator for whether the lobbying is related to the Republican (Democratic) Party based on the political contribution of firm i's executives (or lobbyists). We also calculate corresponding measures using the text-based classification of lobbying reports (e.g., $ClimateLobby^{Anti\,(Text)}_{r,i,q,t}$).

[23] Table IA A1, Panel C, shows that contributions by executives help us significantly in identifying the stance of lobbying reports with (i) larger lobbying amounts, (ii) more lobbying issues, and (iii) more lobbyists. We provide more details below.

Finally, we sum these amounts across all reports r filed by lobbying firms or in-house lobbyists for firm i in quarter q of year t:

$$ClimateLobby^{Anti}_{i,q,t} = \sum_{r} ClimateLobby^{Anti}_{r,i,q,t}$$
$$ClimateLobby^{Pro}_{i,q,t} = \sum_{r} ClimateLobby^{Pro}_{r,i,q,t}.$$

As some firms have pro- and anti-climate expenses, we create a net measure, which takes positive values (negative values) if a firm does more (less) anti- than pro-lobbying:[24]

$$ClimateLobby^{Anti-Pro}_{i,q,t} = ClimateLobby^{Anti}_{i,q,t} - ClimateLobby^{Pro}_{i,q,t}.$$

3.3 Creating Firm-Year Level Intensity Measures

We make two final adjustments. First, we create annual versions by summing up the quarterly lobbying amounts across the calendar quarters of year t to smooth within-year variation.

$$ClimateLobby^{Anti}_{i,t} = \sum_{q=1}^{4} ClimateLobby^{Anti}_{i,q,t}$$
$$ClimateLobby^{Pro}_{i,t} = \sum_{q=1}^{4} ClimateLobby^{Pro}_{i,q,t}.$$

Second, we account for size effects by scaling the lobbying expenses by firm i's assets:

$$ClimateLobbyIntensity^{Anti}_{i,t} = ClimateLobby^{Anti}_{i,t}/Assets_{i,t}$$
$$ClimateLobbyIntensity^{Pro}_{i,t} = ClimateLobby^{Pro}_{i,t}/Assets_{i,t}.$$

[24] These cases are rare. We find that only 3% of firm-quarters with climate lobbying expenses have reports assigned to two parties. This occurs when we determine the stance of reports based on the political donations of external lobbyists (i.e., these are cases where two or more reports were filed for a firm by lobbyists with diverging political views).

We accordingly calculate an annual version of net climate lobbying for firm i in year t:

$$ClimateLobbyIntensity_{i,t}^{Anti-Pro} = (\sum_{q=1}^{4} ClimateLobby_{i,q,t}^{Anti-Pro})/Assets_{i,t}.$$

We also create indicators that each equal one if the respective expense is positive (e.g., $\mathbb{1}(ClimateLobby)_{i,t}^{Anti}$ equals one if $ClimateLobby_{i,t}^{Anti}$ is positive, and zero otherwise).

3.4 Accounting for Trade Association Lobbying

To account for indirect climate lobbying through trade associations, we use the same approach and calculate anti- and pro-climate lobbying amounts for each association ta in year t based on its lobbying reports and campaign contributions.[25] These amounts are then proportionally allocated to member firms m using annual revenues as weight. We aggregate firm i's indirect climate lobbying across the climate-related trade associations TA^i it belongs to as follows:

$$ClimateLobby_{i,t}^{Anti,TA} = \sum_{ta \in TA^i} \frac{Rev_{i,t}}{\sum_{m \in ta} Rev_{m,t}} ClimateLobby_{ta,t}^{Anti}.$$

For robustness check, this value is then combined with our baseline measure to capture the total amount of (direct and indirect) climate lobbying:

$$ClimateLobbyIntensity_{i,t}^{Anti,Combo} = (ClimateLobby_{i,t}^{Anti} + ClimateLobby_{i,t}^{Anti,TA})/Assets_{i,t}.$$

We use a similar approach for pro-climate lobbying expenses ($ClimateLobbyIntensity_{i,t}^{Pro,Combo}$) and for the net measure ($ClimateLobbyIntensity_{i,t}^{Anti-Pro,Combo}$).

[25] IA Section C provides details on how we select key climate-related trade associations and measure their lobbying amounts.

3.5 Measuring General Political Lobbying

As control variables, we calculate corporate expenses for broader political lobbying. $LobbyIntensity_{i,t}^{Dem}$ quantifies lobbying expenses—irrespective of whether they are climate-related—by firms where executives (or lobbyists) exclusively contribute to the Democratic party; we scale again by assets to obtain an intensity measure. $LobbyIntensity_{i,t}^{Rep}$ is defined accordingly but for firms whose executives or lobbyists exclusively contribute to the Republican party. Similar to our approach for the climate measures, we assign corporate lobbying expenses to a political party based on whether firm executives donate more than 75% of its donations according to FEC data to a single party (over the past three years) and do likewise using data on lobbyists if executive data is missing.

4 Anatomy of Corporate Climate Lobbying

4.1 Descriptive Evidence on Climate Lobbying

Table 1 presents summary statistics of the measures of corporate climate lobbying at the firm-year level. In Panel A, the sample includes U.S.-listed firms with data on lobbying reports, independent of whether the lobbying is climate-related. Across the full sample, the average firm spends \$85k annually on climate-related lobbying. Expenses on anti-climate lobbying are about 50% larger than those on pro-climate lobbying, with yearly averages of \$51k and \$34k, respectively. As a result, $ClimateLobby^{Anti-Pro}$ is positive at the average firm (\$17k). The median values for these variables are zero as most sample firms do not lobby on climate topics. Climate lobbying occurs in 18.3% of firm-years, as reflected by the indicator $\mathbb{1}(ClimateLobby)$ (extensive margin). In terms of the lobbying stance, we observe anti-climate lobbying in 10.6% of firm-years, and pro-climate lobbying in 8.5%.

For comparison, $Lobby^{Rep}$, the general lobbying expenses by firms whose executives or lobbyists exclusively contribute to Republicans, amounts on average to \$521k per year; the

corresponding average for $Lobby^{Dem}$ equals \$389k. Hence, pro- and anti-climate lobbying each amount to slightly less than 10% of the aggregate lobbying expenses of firms that donate only to the Republican or Democratic Party. The table also reports summary statistics on other firm-level variables used to explain climate lobbying; these data are typically available for only a subset of firm-years.

In Table 1, Panel B, we report figures for firms that undertake climate lobbying (i.e., $\mathbb{1}(ClimateLobby)$=1). It becomes clear that the full sample averages in Panel A mask the actual amounts spent: At the intensive margin, the averages for $ClimateLobby^{Anti}$ and $ClimateLobby^{Pro}$ are \$277k and \$185k respectively.[26] The panel further reports the asset-scaled lobbying intensity measures. $ClimateLobbyIntensity^{Anti-Pro}$, for example, has a mean value of 11.15 after scaling by firm assets (in \$ million). All variables come with very large standard deviations, reflecting significant cross-sectional variation in climate lobbying expenses across firms. Notably, when identified solely based on verbal text-based descriptions in the lobbying reports, climate lobbying is substantially smaller: for anti-climate lobbying, we then observe average lobbying expenses of only \$200k (about 28% less), and for pro-climate lobbying expenses of \$105k (about 43% less). We demonstrate below that the wedge originates primarily from the more recent sample years.

Table IA A2 reports some interesting correlations. First, the anti-lobbying intensity correlates much more strongly with $CarbonEmissions$ and $CarbonIntensity$ than the pro-lobbying counterpart. Second, the correlations between the main measures and those that are text-based only are all below 1 (0.93 and 0.78, respectively).

[26] Table IA A1, Panel C, compares firm-year observations for which we detect the direction of lobbying through executive or lobbyist contributions. For over 70% of the climate lobbying samples, we identify the stance of the lobbying through executive contributions, with mean amounts of anti- and pro-climate lobbying equal to \$356k and \$239k, respectively; this is approximately fourfold the average amounts identified through lobbyist contributions.

4.2 Time-Series Evolution of Climate Lobbying

Figure 2 plots in Panel A the quarterly trend in climate lobbying over time (pro-climate lobbying depicted in blue, anti-climate lobbying in red), and in Panel B the number of pro- or anti-climate lobbying firms.[27] In Panel A, spending on climate lobbying was low before 2006, reflecting limited corporate and societal awareness of climate issues, and few related bills or regulations.[28] From 2008 to 2010, climate lobbying increased considerably (both types), coinciding with a significant surge in climate legislation, such as the (eventually failed) American Clean Energy and Security Act, also called the Waxman-Markey Bill. During this period, up to 129 publicly listed sample firms allocated around $31m per quarter on anti-climate lobbying, while a similar number of firms spent up to $23m on pro-climate efforts.

Expenditures dropped across the board after 2010, though anti-climate lobbying consistently exceeded pro-climate lobbying. Another peak occurred in 2014, with around 120 sample firms engaging in anti-climate lobbying, albeit with reduced spending of about $16m in total. The period from 2017 to 2019, under President Trump's administration, saw the least climate-related lobbying activity, likely due to his explicit opposition to climate action. This largely muted climate lobbying efforts by both sides, probably as his categorical anti-climate stance made any pro-climate regulation highly unlikely (e.g., in 2017, he appointed climate-change denier Scott Pruitt to head the EPA).

In 2022, climate lobbying reached a sudden new peak, with over 220 firms lobbying for, and 150 against, climate actions. Pro-climate lobbying saw significantly higher expenditures, exceeding $42m per quarter, compared to less than $18m for anti-climate efforts. The surge in pro-lobbying seems largely related to President Biden's administration, which proposed more stringent climate regulation and efforts supporting climate action. Meanwhile, despite continued opposition, firms lobbying against climate action largely reduced their spending,

[27] In IA Section B, we report the most heavily lobbied climate bills.

[28] As mentioned above, lobbying reports were semi-annual before 2008. In the figure, we divide pre-2008 semi-annual expenditures by two to approximate quarterly amounts.

possibly recognizing the lower potential payoff of such expenditures.

The dynamics that we report in Figure 2 do not simply reflect variation in aggregate lobbying expenses to the Republican or Democratic Party. This is visualized in Figure IA A3, which reports the time-series of $Lobby_{i,t}^{Rep}$ and $Lobby_{i,t}^{Dem}$.

4.3 Camouflaging Climate Lobbying

From inspecting lobbying reports, we observe an emerging trend by firms to avoid explicitly mentioning climate issues; this development has become more pronounced since 2021. Instead, firms increasingly refer to bills using bill codes, which are not immediately identifiable as climate-related based on their descriptions alone (e.g., bill code "H.R.5376" refers to the Inflation Reduction Act of 2022). This, in turn, requires external information for context.

This change can be illustrated with an example from FedEx Corp. In 2009, the transport firm spent \$5.3m out of \$18.7m (28%) on anti-climate lobbying, with 58% of the amount being identifiable through keywords, and 59% through keywords and bill titles. In 2022, FedEx spent \$1.3m out of \$12.7m (9.9%) on anti-climate lobbying, with the detectable proportions dropping to only 4% and 34%. All remaining anti-climate lobbying expenses can only be detected using bill codes and bill titles (96%) or only through bill codes (66%).

Figure 3 illustrates this change beyond the FedEx case, depicting the time series of lobbying expenses (Panel A) and lobbying firms (Panel B) as identified solely based on climate-related keywords. While the panels largely mirror those in Figure 2 until about 2021 (with some exceptions), a wide gap emerges in the later years. We calculate that before 2010, over 80% of climate-related lobbying reports openly included climate keywords. This proportion fell to below 35% by the end of 2022. Accordingly, the number of firms explicitly mentioning climate issues also decreased by about 50% in Panel B over the past two to three years. That lobbying amounts fell by more than the number of firms implies that it is especially firms with large lobbying expenses avoiding direct mentions of climate keywords.

4.4 Industry and Firm Distribution of Climate Lobbying

Figure 4 reports the distribution of climate lobbying expenses by industrial sector. Panel A reports the total expenses and Panel B displays firm-level quarterly averages. In both panels, we report anti- and pro-climate expenses, but we rank sectors based on the amount of anti-climate lobbying. In Panel A, anti-climate lobbying is highly concentrated, with firms in Utilities and Petroleum & Natural Gas spending the largest total amounts ($231.7m and $231.8m across sample years, respectively). When considering firm-level averages in Panel B, Coal emerges as a further sector with constituent firms spending large resources on anti-climate lobbying (the difference to Panel A arises as the number of firms in the Coal sector is smaller compared to the Utility sector).[29] Pro-climate lobbying is more dispersed across sectors. The Utility sector ranks highest in both the aggregate amount of pro-climate lobbying and the per-firm-quarter average. Other sectors with high aggregate pro-climate expenses include Automobiles & Trucks, Electronic Equipment, and Computer Software.

Figure 5, Panel A, lists the firms with the largest aggregate anti-climate spending. The top-5 firms include utility Southern Company, which tops the ranking by a margin with $88m in aggregate spending across all sample years, followed by the oil majors ExxonMobil, Chevron, and BP, and utility American Electric Power. Though the vast majority of these firm's lobbying expenses are anti-climate, Southern Company and BP also spend some money on pro-climate lobbying. Figure 5, Panel B, lists the largest spenders on pro-climate lobbying. The ranking is topped by PG&E, GM, utilities Calpine and Coventa Energy, and Microsoft. The spending by the largest pro-climate lobbyist, PG&E amounts to $54m, or 62% of the anti-lobbying amount of Southern Company (ranked first in Panel A).

Figure 6 presents a geographical distribution of climate lobbying activities. States where

[29] Across all firm-quarters for the Coal sector, 128 out of 388 firm-quarters (or 33%) contain lobbying against climate actions (untabulated). Similarly, in the Petroleum & Natural Gas sector, 556 (27%) out of all 2,084 firm-quarters involve anti-climate lobbying. Focusing solely on active lobbying firm-quarters, average spending rises to $0.42m and $0.21m per firm per quarter in the Petroleum and Coal industries, respectively (untabulated).

the anti-lobbying amounts constitute over 55% of total climate lobbying are marked in red (the remainder of states are shaded in blue). We allocate firms to states based on the headquarters location. States with pro-climate firms include California and Washington, whereas states with anti-climate lobbying firms include Texas or Florida.

4.5 Indirect Lobbying through Trade Associations

We calculate that trade associations play an important role in climate lobbying, particularly when it comes to anti-climate lobbying. Notably, as indicated in Figure IA C1, climate lobbying expenses are concentrated among a few trade associations. The U.S. Chamber of Commerce spent $267m during our sample years on anti-climate lobbying, surpassing the combined expenditures of all other associations. The Business Roundtable ($32m), the American Petroleum Institute ($32m), and the American Chemistry Council ($19m) also invested heavily in anti-climate lobbying.[30] Indirect anti-climate lobbying equals on average about 32% of direct lobbying; indirect pro-climate lobbying accounts for about 12%.

5 Climate Lobbying and the Net-Zero Transition

5.1 Climate Lobbying, Carbon Emissions, and Green Innovation

To understand the motives behind climate lobbying, we evaluate whether the lobbying relates to business model characteristics deemed important for a firm's climate transition. Building on prior climate finance work, we start with features that proxy for risks and opportunities related to climate change. First, we evaluate the role of carbon emissions, a firm-level measure of climate transition risk (Bolton and Kacperczyk, 2021, 2023; Ilhan et al., 2021) and,

[30] As shown in the figure, some associations engage in pro-climate lobbying, albeit with smaller expenditures, including the Association of American Railroads ($20m), Alliance of Automobile Manufacturers ($15m), and Solar Energy Industries Association ($14m). The large concentration of climate lobbying alleviates concerns that our focus on key trade associations underestimates indirect lobbying. See our discussion in IA Section C for details.

second, we consider measures of green innovation, which act as proxies for business opportunities related to the net-zero transition (Sautner et al., 2023; Leippold and Yu, 2024; Cohen et al., 2021). We estimate the following firm-year regressions for firm i and year t:

$$Climate\,LobbyIntensity^{X}_{i,t} = \beta_0 + \beta_1 Transition\,Variable_{i,t} + \beta_2 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,t}, \quad (1)$$

where $ClimateLobbyIntensity^{X}_{i,t}$ is one of three measures of firm i's scaled climate lobbying expenses in year t (i.e., $ClimateLobbyIntensity^{Anti}_{i,t}$, $ClimateLobbyIntensity^{Pro}_{i,t}$, or $ClimateLobbyIntensity^{Anti-Pro}_{i,t}$). When considering risks, $Transition\,Variable_{i,t}$ is a firm's Scope 1 emissions ($\text{Log}(Carbon\,Emissions_{i,t})$) or sales-scaled emissions ($CarbonIntensity_{i,t}$). When focusing on opportunities, $Transition\,Variable_{i,t}$ is replaced by $GreenPatents_{i,t}$ or $GreenInnovation_{i,t}$, whereby $GreenPatents_{i,t}$ is the number of granted green patents scaled by all patents, and $GreenInnovation_{i,t}$ is the fraction of the earnings call that discusses green innovation (Leippold and Yu, 2024). The vector $\mathbf{X}_{i,t}$ includes various firm characteristics ($Log(Asset)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$). We include year fixed effects (γ_t) to identify effects from the cross-section of firms and add industry fixed effects (δ_j) to compare firms with their industry peers. Independent variables are normalized to have a mean of zero and a standard deviation of one. Standard errors are clustered at the industry level. The sample includes all firms with lobbying expenses.

Table 2 provides estimations of Eq. (1). In Panel A, we explore the role of carbon emissions. In Columns 1–2, firms with more carbon-intense business models, measured using $\text{Log}(CarbonEmissions)$ or $CarbonIntensity$, spend significantly more on anti-climate lobbying. In Column 1, a one-standard-deviation increase in $\text{Log}(Carbon\,Emissions)$ (2.86) is associated with a 2.23 increase in the anti-climate lobbying intensity, or 76% of the variable's mean. These effects contrast sharply with opposing effects in Columns 3–4, in which we explain pro-climate lobbying. In Column 3, a one-standard-deviation increase in the emissions variable is associated with a 1.80 decrease in the pro-climate lobbying intensity, or about 74%

of the variable's mean. The effects in Columns 1–4 lead to positive and significant coefficients for regressions explaining $ClimateLobbyIntensity^{Anti-Pro}$ in Columns 5–6.

Table 2, Panel B, focuses on green innovation and demonstrates in Columns 1–2 no link between $GreenPatents$ ($GreenInnovation$) and anti-climate lobbying. However, significant and positive correlations emerge with pro-climate lobbying in Columns 3–4, with point estimates also being much larger. A one-standard-deviation increase in the green patents (green innovation) measure is associated with a 5.88 (7.03) increase in the pro-climate lobbying intensity; the estimates are sizable as they correspond to 133% (159%) of the variables' means in the regression sample. Consequently, the correlations for $ClimateLobbyIntensity^{Anti-Pro}$ in Columns 5–6 are negative. Results are similar (not reported) when using green patent shares weighted by economic value (Kogan et al., 2017) or forward patent citations.

5.2 Climate Lobbying and Electricity Generation Sources

In Figure 4, the Utility sector ranks highest for both anti- and pro-climate lobbying, suggesting that variation in business models within this sector leads to diverging lobbying policies. To understand this heterogeneity, we analyze the role of different electricity generation sources in explaining climate lobbying. Electricity generators vary greatly in their fuel sources, and these differences affect firms heterogeneously in terms of exposure to transition risk as the economy moves away from fossil fuels toward renewable energy.

To explore this heterogeneity, we use granular power-plant-level data provided by the EIA, which we aggregate at the firm level. By construction, these data are available only for a subset of the sample, the majority of which are utilities (68%); other sample firms operating electricity plants are from the Oil, Chemicals, and Steel industries. The EIA data are differentiated by fuel types and we classify energy generation sources into six categories using Annual Energy Review fuel type codes: (i) coal; (ii) oil (e.g., distillate petroleum or petroleum coke); (iii) natural gas; (iv) nuclear; (v) renewable (e.g., solar PV and thermal, or

wind); and (vi) others.[31] To measure the importance of a specific fuel source for a firm, we scale the Megawatt hours associated with a fuel type by assets (in $ millions). We then estimate a variant of Eq. (1) in which we replace $Transition\,Variable_{i,t}$ with a vector containing each of the six fuel sources:

$$Climate\,LobbyIntensity^{X}_{i,t} = \beta_0 + \beta_1 \textbf{Fuel Sources}_{i,t} + \beta_2 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,t}, \qquad (2)$$

where $ClimateLobbyIntensity^{X}_{i,t}$ is defined as above and the vector $\textbf{Fuel Sources}_{\mathbf{i,t}}$ includes six different scaled fuel sources for firm i and year t ($Coal/Assets_{i,t}$, $NaturalGas/Assets_{i,t}$, etc.); the remaining variables and fixed effects are defined as before.[32]

Estimations of Eq. (2) are reported in Table 3. In Column 1, firms that primarily use coal as an energy source are significantly more likely to conduct anti-climate lobbying. A one-standard-deviation increase in coal intensity is associated with a 0.39 increase in anti-climate lobbying intensity, or about 9% of the variable's mean. There is a similar effect for gas. At the same time, as documented in Column 2, nuclear energy usage correlates with significantly increased pro-climate lobbying expenses. Somewhat unexpectedly, firms relying on renewable energy do not spend more on pro-climate lobbying.

5.3 Climate Lobbying and Future Climate-related Performance

Anti-climate lobbying may be undertaken by firms trying to prevent future climate regulations, such as carbon taxes, emission limits, or cap-and-trade schemes, to avoid regulatory costs associated with current or future climate-related incidents. By contrast, firms with decreasing carbon emissions may lobby for climate regulations (or support rules favoring low-carbon renewable energy sources or technology). To examine these possibilities, we es-

[31] The Form EIA-923 survey provides detailed electricity generation data for 9,108 electricity plants (in Megawatt hours). By matching plant operators with Compustat firms, we aggregate data on all electricity plants of an operator to the firm-year level.

[32] This regression deviates from the remaining tables in that we include some non-listed U.S. firms (some major utilities in the EIA database are unlisted).

timate regressions of firm i's environmental performance in the next year (t+1) on climate lobbying in the current year (t):

$$\begin{aligned} Climate\,Perf_{i,t+1} &= \beta_0 + \beta_1 Climate\,LobbyIntensity_{i,t}^{Anti} \\ &+\beta_2 Climate\,LobbyIntensity_{i,t}^{Pro} + \beta_3 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,t+1}, \end{aligned} \tag{3}$$

where $Climate\,Perf_{i,t+1}$ is a measure of climate-related incidents or carbon emissions. The incidents variables, Log($Climate\,Incidents_{i,t+1}^{Number}$) and Log($Climate\,Incidents_{i,t+1}^{Severity}$), measure the number or severity of negative climate incidents as sourced from RepRisk, and the emissions variables, Log($CarbonEmissions_{i,t+1}$) and $CarbonIntensity_{i,t+1}$, are defined as above.[33] The vector $\mathbf{X}_{i,t}$ includes the same firm characteristics as before, and we additionally control for contemporaneous levels in $Climate\,Perf_{i,t}$ (e.g., emissions exhibit a high level of autocorrelation, so controlling for current levels is important).

Table 4 reports estimations of Eq. (3). In Panel A, more anti-climate spending is associated with more future climate incidents, with results being stronger if we account for the incident severity. In Column 1, a one-standard-deviation increase in $ClimateLobbyIntensity^{Anti}$ comes with a 2.8% rise in incidents, whereas $ClimateLobbyIntensity^{Pro}$ is not linked to such incidents. When considering incident severity, $ClimateLobbyIntensity^{Anti}$ adjusts to a 3.2% increase. This implies that incident severity influences firms' lobbying against stricter climate regulations, while there is no impact from pro-climate lobbying. However, we note that the effect sizes are modest only. Similar results are obtained if we use the net lobbying measure in Columns 2 and 4, with a 2% increase in incident occurrence and severity for a one-standard-deviation increase in the variable. An interpretation of these results is that some anti-lobbying occurs in anticipation of climate-related incidents, with lobbying firms trying to create political capital to reduce any regulatory backlash.[34]

[33]The incidents variables focus on negative events related to climate change, GHG emissions, or pollution. RepRisk flags and monitors material ESG risks and violations of international standards.

[34]For robustness, we estimate Eq. (3) using Poisson regressions, which provide unbiased and consistent estimates and allow for separable fixed effects with count-based dependent variables (Cohn et al., 2022). The results (not reported) show similarly significant positive coefficients for $ClimateLobbyIntensity^{Anti}$.

In Panel B, anti-climate spending positively correlates with higher future carbon emissions in Columns 1 and 3. A one-standard-deviation increase in $ClimateLobbyIntensity^{Anti}$ in Column 1 is associated with 1% higher carbon emissions in the next year; this is a reasonably large number given the stickiness of emissions. An interpretation is that firms that expect higher future carbon emissions lobby more to avoid being affected by costly and stricter climate regulations. In Column 3, a one-standard-deviation rise in anti-climate lobbying expenditures is correlated with an increase of 4.93 tonnes of CO_2-equivalents per $ million revenues.

5.4 Climate Lobbying and Camouflaged Activities

Given the recent trend of camouflaging climate-related lobbying (Section 4.3), we explore some drivers of this behavior, in particular the role of a switch in the direction of the lobbying stance. We use a measure that quantifies the intensity of the camouflaged lobbying:

$$Camouflage\,1_{i,t}^{X} = \frac{ClimateLobby_{i,t}^{X} - ClimateLobby_{i,t}^{X(Text)}}{ClimateLobby_{i,t}^{X}},$$

where $ClimateLobby_{i,t}^{X}$, as defined above, represents the amount of anti- (or pro-) climate lobbying ($X \in (Anti, Pro)$). $ClimateLobby_{i,t}^{X(Text)}$ measures the part of climate lobbying that is determined exclusively from climate keywords. Hence, $Camouflage\,1_{i,t}^{X}$ isolates the share of lobbying that is identifiable exclusively from the bills mentioned in the issue description (either from bill codes or bill titles). As a complementary measure, we also calculate:

$$Camouflage\,2_{i,t}^{X} = \frac{ClimateLobby_{i,t}^{X} - ClimateLobby_{i,t}^{X(Text+Bill\,Titles)}}{ClimateLobby_{i,t}^{X}},$$

where $ClimateLobby_{i,t}^{X(Text+Bill\,Titles)}$ now captures lobbying identified either from climate keywords or bill titles; this measure exploits that lobbying reports sometimes mention bill titles which—despite lacking climate keywords—suggest some climate relevance (see Section 3.1 on how we identify climate-related bills). Thus, $Camouflage\,2_{i,t}^{X}$ focuses on those lobbying

activities that are identified solely through abstract bill *codes* in the issue description.

Table IA A3, Panel A, illustrates the detection of climate lobbying issues using the two measures. Issues with climate keywords in descriptions or bill titles are recognized by both approaches. In contrast, issues presenting bill titles without climate keywords are identified exclusively with the second text-based measure. Panel B lists the top ten climate bill titles found in lobbying reports lacking climate keywords. In Panel C, we provide examples for calculating the two camouflage measures.[35] Across our full sample, we find that of the 1,579 firm-years with anti-climate lobbying, 894 (57%) exhibit camouflaged lobbying through the omission of climate keywords in at least one lobbying issue, and 699 (44%) do so by listing only bill codes. Among 1,260 firm-years with pro-climate lobbying, 776 (62%) and 610 (48%) contained the respective forms of camouflaging.

What explains camouflaging? Some of it may be an attempt to influence policy without risking the public image, which could be most relevant for firms entering the arena of climate lobbying or altering their stances. We explore this possibility by creating measures of the change in a firm's lobbying policy to capture: (i) moving from no climate lobbying (in the past three years) to anti- or pro-climate lobbying, and (ii) reversing the (anti- or pro-) lobbying directions (compared to the previous three years).[36] We then estimate the following regressions:

$$Camouflage\,1(2)^{X}_{i,t} = \beta_0 + \beta_1 \mathbb{1}(Lobby\,Policy\,Change^{X\to X}_{i,t}) + \beta_2 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,t}, \quad (4)$$

[35] We use ExxonMobil's 2021Q4 lobbying report as an example. As their executives mainly donate to the Republican party, our methodology assumes that their lobbying efforts are anti-climate. This report lists six issues with a total lobbying amount of $2,390,000. None of these issues mention any predefined climate keywords, while one issue description references a climate bill title and another two descriptions cite climate bill codes, leading to detected anti-climate lobbying amounts of $1,195,000, $0, and $398,333 across the three measurements, respectively. Consequently, $Camouflage1^{Anti}$ is calculated as (1,195,000-0)/1,195,000 = 100%, and $Camouflage2^{Anti}$ as (1,195,000-398,333)/1,195,000 = 66.67%. These calculations are at the report level, but the same principle is extended to the firm-quarter level by aggregating lobbying expenditures from reports within the same quarter.

[36] In total, 469 (or 30%) of all anti-climate lobbying firm-years in the sample shifted to this stance from no previous climate lobbying activity, and 148 (9%) show a switch to anti-climate lobbying from a previous pro-climate position. For pro-climate lobbying, 439 (35%) of firm-years are associated with no prior lobbying, and 147 (12%) switched to this stance from a prior anti-climate lobbying stance.

where $Camouflage\,1(2)_{i,t}^{X}$ is one of the two measures reflecting the degree of camouflaging, and $\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{X\to X})$ is a firm-level measure reflecting a lobby policy change. For example, $\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Anti\to Pro})$ indicates that a firm changed from anti- to pro-climate lobbying. We use the same fixed effect as in Eq. (1).

Table 5 reports estimations of Eq. (4), with estimates for firms with anti-climate lobbying in Columns 1–4, and for firms with pro-climate lobbying in Columns 5–8. Firms transitioning from no climate lobbying to either stance demonstrate significantly more camouflaged activity. Specifically, compared to industry counterparts active in anti-climate lobbying over the past three years, firms new to climate lobbying have 15% more of their lobbying activities concealed through the absence of climate keywords (Column 1), and 12% more activities only identifiable through bill codes (Column 3). The magnitudes correspond to roughly 40% of the average value for these two types of camouflaged intensity. The pattern holds for pro-climate lobbying, albeit with slightly smaller magnitudes (Columns 5 and 7). Columns 6 and 8 reveal an increase in camouflaged pro-climate lobbying when the lobbying position was previously anti-climate (effects are marginally insignificant), an effect not observed on the anti-climate side in Columns 2 and 4. Firms that previously focused on anti-climate efforts but switched to pro-lobbying now have 6% (t-statistic = 1.47) and 5% (t-statistic = 1.56) more of their pro-lobbying amounts undetectable. This behavior may enable firms to begin aligning their lobbying with environmental norms without drawing premature attention to the shift in strategy (particularly if they are not fully prepared to commit publicly due to current business models or stakeholder expectations).

6 Stock Returns and Corporate Climate Lobbying

6.1 Empirical Estimates

Having documented key determinants and associated motives of climate lobbying, we address whether investors care about a firm's lobbying activities when pricing stocks. Therefore, we relate firms' stock returns to their corporate climate lobbying expenses. As in Bolton and Kacperczyk (2023), we employ cross-sectional regressions using a characteristic-based approach, which is well suited given our sample's rich cross-sectional variation in lobbying activities and firm characteristics. Further, with a characteristics-based approach, there is no need to make assumptions about the underlying asset pricing model.[37] We link excess returns of firm i in each month of year t+1 (from February of t+1 to January of t+2) to climate lobbying at the end of year t. Lobbying reports are available within one month after the calendar-quarter end, so our estimation includes one month's lag to ensure the information is available to investors. As before, we use annual expenses to smooth variation in lobbying activities within the calendar year. Further, we split the sample into return observations for the years 2002 to 2009 and 2010 to 2022, as we expect stronger effects for the second period—this is because climate lobbying-related concerns by investors have become more relevant over the past few years. The sample includes all firms with lobbying expenses. We estimate the following regressions for firm i in month m of year t:

$$\begin{aligned} Excess\ Return_{i,m,t+1} = \beta_0 + \beta_1 ClimateLobbyIntensity_{i,t}^{Anti} + \\ \beta_2 ClimateLobbyIntensity_{i,t}^{Pro} + \beta_3 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,m,t+1}, \end{aligned} \tag{5}$$

where $Excess\ Return_{i,m,t+1}$ is firm i's raw return minus the risk-free rate during month m of year t+1. $ClimateLobbyIntensity_{i,t}^{Anti}$ and $ClimateLobbyIntensity_{i,t}^{Pro}$ are firm i's anti- or pro-climate lobbying intensities in t. We also estimate Eq. (5) with net lobbying mea-

[37] As explained in Bolton and Kacperczyk (2023), a conceptual difficulty with the choice of asset pricing model, in the context of a complex pricing problem such as climate-related risks, is that no such model has yet been formulated.

sure. We control for lobbying expenses related to the Republican or Democratic Party ($LobbyIntensity^{Rep}$ and for $LobbyIntensity^{Dem}$) and firm characteristics ($Log(MarketCap)$, $Log(B/M)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$). We follow Bolton and Kacperczyk (2021) by including year-month (γ_t) and industry (δ_j) fixed effects, and double cluster standard errors by firm and year. As in Zhang (2023), we use weighted least squares regression to avoid small stocks influencing our estimates.

Table 6 reports estimations of Eq. (5). Results for the 2002-2009 return period are reported in Columns 1–4, and those for the 2010-2022 return period in Columns 5–8. In Columns 1–4, we find no evidence that climate lobbying is related to returns between 2002 and 2009. Coefficients are small and always insignificant. This is sharply different in Columns 5–6, in which we focus on the second period. In Column 5, firms with more anti-climate lobbying earn higher future returns (pro-climate lobbying is not related to returns). A one-standard-deviation increase in $ClimateLobbyIntensity^{Anti}$ is associated with 0.32% (=0.44×73/100) higher monthly returns (or 3.85% annually), with a t-statistic of 5.92. When adding control variables in Column 6, the estimates are similar, and the significance levels are largely unchanged. In Columns 7–8, we replace the two climate lobbying variables with the net measure. In Column 8, which includes the full set of controls, a one-standard-deviation increase in $ClimateLobbyIntensity^{Anti-Pro}$, that is, more net anti-climate lobbying, is associated with a return increase of 4.18% p.a (t-statistic of 2.56).

Do the estimated return effects in Table 6 simply reflect a carbon risk premium? Bolton and Kacperczyk (2021, 2023) demonstrate that firms with higher carbon emissions earn higher returns, attributing this effect to investors seeking compensation for carbon risk exposure. The concern is valid, as Section 4 indicates a positive correlation between climate lobbying—particularly if it is anti-climate—and the current as well as future corporate carbon footprint. This raises the possibility that our effects may, at least in parts, reflect a carbon risk premium.

Table 7, Columns 1–4, investigates this possibility by adding carbon emissions into Eq. (5); we alternatively add Log($CarbonEmissions$) or $CarbonIntensity$. To address concerns re-

garding the delayed availability of emission data to investors, we account for a six-month lag in carbon emissions when matching with stock returns (Zhang, 2023). Hence, we relate returns from July of year t+1 to June of the following year to emissions from year t. After controlling for emissions, $ClimateLobbyIntensity^{Anti}$ remains positively and significantly related to returns for the 2010–2022 period. According to Column 1, a one-standard-deviation increase in anti-climate lobbying is associated with an annual 1.30% return increase (t-statistic of 4.43). Results are obtained regardless of whether we control for emission levels or intensities. In Columns 3–4, $ClimateLobbyIntensity^{Anti-Pro}$ remains positively and significantly related to returns (t-statistics of 2.72 and 2.67, respectively).

Table 7, Columns 5–8, alleviate concerns that ignoring lobbying through trade associations biases the effects. To this end, we estimate the combined effects of direct and indirect climate lobbying. Across all four columns, we observe patterns similar to those in the baseline estimation for the 2010–2022 period. In Column 5, a one-standard-deviation increase in its expenditures correlates with a 0.42% higher return per month (or 5.08% per year), with a t-statistic of 3.86. This effect is larger than the corresponding effect in Table 6.

Our cross-sectional regressions follow prior climate finance literature, but we also conduct portfolio sorts as in Fama and French (1992, 1993) to corroborate the return effects. Results are reported in Table IA A4. To ensure all information is available to investors before holding stocks, we form portfolios at the end of each January in year $t+1$ based on annual lobbying expenses from January to December of year t. Panel A sorts firms according to $ClimateLobbyIntensity_{i,t}^{Anti}$ within each Fama-French 49 industry for the 2010–2022 period. The *Low* (*High*) portfolio represents firms with below (above) median values, while the *Zero* portfolio contains firms without climate lobbying.[38] We form a *High*-minus-*Low* portfolio that takes a long (short) position in the *High* (*Low*) portfolio, as well as *High*-minus-*Zero* portfolio by shorting the *Zero* portfolio instead. Value-weighted monthly returns

[38]For a fair comparison, we filter the *Zero* portfolio to include only firms from top anti-climate lobbying industries that account for more than 80% of total climate lobbying.

are calculated for each portfolio over the next 12 months (from February of year t+1 to January of year t+2). The results confirm that $ClimateLobbyIntensity_{i,t}^{Anti}$ predicts returns. The *High*-minus-*Low* portfolio generates a return spread of 0.28% (t-statistic of 1.67), while the *High*-minus-*Zero* spread is positive but insignificant. We also report in the same panel risk-adjusted returns (α) by performing time-series regressions of portfolios' excess returns on common risk factors.[39] All αs for the *High*-minus-*Low* portfolios remain significant and maintain their magnitudes. Those for the *High*-minus-*Zero* portfolios also become significant at the 5% level. Hence, common risk factors are unlikely to explain the cross-sectional return spread across portfolios sorted on $ClimateLobbyIntensity^{Anti}$.[40] For robustness, in Panel B, we sort the climate lobbying sample by $ClimateLobbyIntensity_{i,t}^{Anti-Pro}$. The *Low* (*High*) portfolio includes firms below (above) 30th (70th) percentile within Fama-French-49 industries, while the *Medium* group contains those in between. The *High*-minus-*Low* portfolios take a long (short) position in the *High* (*Low*) portfolio, often characterized by large anti(pro)-climate lobbying intensity. All return spreads and αs are significant and similar in magnitude for *High*-minus-*Low* portfolios to those in Panel A.

6.2 Interpretation of Results: Risk Premium versus Mispricing

Two channels may explain why climate lobbying and returns relate positively. The first channel holds that firms with large anti-climate lobbying expenses are perceived as riskier, because of reputation and transition risks associated with the lobbying. As indicated before, anti-climate lobbying can constitute an investment risk by damaging trust in firms and leading to "name and shame" actions (reputation risks). It can lead to firms not adjusting business models fast enough, hoping the lobbying will be successful (transition risk). Anti-climate lobbying may also signal climate regulatory uncertainty if firms exposed to such uncertainty

[39] The FF3-Mom α is the intercept when regressing portfolio returns on Fama-French three factors plus the momentum factor. The FF5 α uses Fama-French five factors, and the HXZ-q α employs Hou-Xue-Zhang q-factors.

[40] We perform the same portfolio sorting based on $ClimateLobbyIntensity_{i,t}^{Pro}$ (untabulated); the results are not significant.

engage in more anti-climate lobbying. Evidence on this channel would align with the pricing of carbon transition risk (Bolton and Kacperczyk, 2021, 2023; Ilhan et al., 2021).

If the return results reflect a risk premium, then—from an equilibrium perspective—the stock prices of anti-climate lobbyists should be bid down (bid up) around major events that increased (decreased) investor beliefs about climate-related regulation (Bolton and Kacperczyk, 2021). Lobbying-related risks would, in turn, be impounded into prices, as lower (higher) prices imply higher (lower) expected returns. Identifying all of these events is difficult, but these repricing dynamics—if they exist—should be present around major climate-related policy events that unexpectedly shifted investor beliefs. We turn to this analysis in Section 7.

According to a second channel, firms with large anti-lobbying expenses generate unexpectedly higher earnings. This should, in turn, lead to positive earnings surprises and future returns. Unexpectedly higher earnings may arise if anti-climate lobbying successfully and unexpectedly leads to less stringent or no regulation, or lower regulatory costs. An important element of this mispricing channel is that it requires *unexpectedly* higher earnings, as higher earnings per se should be capitalized in a stock's valuation and not be associated with higher returns. It is important to address the mispricing alternative carefully because we use realized returns as proxies for expected returns in our baseline tests. Hence, the effects in Table 6 may stem from unexpected changes in corporate earnings.[41] This can drive up the realized returns of these firms, implying a positive link between anti-climate lobbying expenses and returns due to mispricing rather than a risk channel.

To evaluate the mispricing channel, we relate climate lobbying to earnings surprises:

$$\begin{aligned} SUE_{i,t} =& \beta_0 + \beta_1 ClimateLobbyIntensity_{i,t}^{Anti} + \beta_2 ClimateLobbyIntensity_{i,t}^{Pro} \\ &+ \beta_3 \mathbf{X}_{i,t} + \gamma_t + \delta_j + \epsilon_{i,t}, \end{aligned} \tag{6}$$

[41] For example, firms engaging in anti-climate lobbying, which typically operate carbon-intensive business models, might choose not to invest in emission reduction technology if they perceive strict climate regulations as unlikely. This inaction can lead to higher-than-anticipated earnings, as it saves on costs (at least in the short-run), prompting investors to adjust their valuations upwards.

where SUE is one of two measures of earnings surprises (SUE), constructed using I/B/E/S data and applying the methods from Atilgan et al. (2023). $SUE1$ is the actual earnings per share (EPS) for the fiscal year t minus the analyst consensus forecast, divided by the fiscal year-end stock price. We measure the analyst consensus as the median analyst forecast constructed eight months before the end of the forecast period (if analysts provide estimates for the upcoming fiscal year, then the forecast period spans the 12 months of the fiscal year). $SUE2$ is calculated accordingly but based on analyst consensus forecasts made 20 months before the end of the forecast period. We exclude observations where actual-forecast EPS deviation exceeds 10% of the stock price. The regression incorporates year (γ_t) and industry (δ_j) fixed effects. Standard errors are clustered by firm and year.

Table IA A5 reports results for Eq. (6). The estimation period is from 2010 onwards, that is, the years in which we documented higher returns for firms with high anti-lobbying expenses. Across all columns, none of the climate lobbying measures significantly correlate with the measures for earnings surprises. This suggests that the observed positive return effects of anti-climate lobbying are unlikely to be driven by mispricing related to earnings surprises. Further, it is conceptually unclear why the mispricing channel and unexpectedly higher earnings would only materialize since 2010.

To further address that our usage of realized returns may mask a mispricing effect, we estimate each stock's *expected* return using measures of a firm's implied cost of capital (ICC).[42] The ICC is the discount rate that equates a stock's current price to the present value of expected future cash flows. Lee et al. (2021) compare various ICC methods and identify the one proposed by Gebhardt et al. (2001) (GLS) as producing the lowest measurement error variance and as being most reliable in cross-sectional tests. In Table IA A6, Columns 1–4, we therefore replace $Excess\ Return_{i,m,t+1}$ in Eq. (5) with $ICC^{GLS}_{i,m,t+1}$. Columns 5–8 instead employ $ICC^{Mean}_{i,m,t+1}$, a composite ICC measure of the equal-weighted average of four commonly

[42]This addresses concerns about using future realized returns as proxies for expected returns in a climate finance context as ours, which is characterized by a short sample period and evolving investor perception.

used ICC variants.[43] Across all columns, we obtain positive and significant coefficients for the anti-climate lobbying measure: a one-standard-deviation rise is associated with a monthly increase of 0.034% in ICC^{GLS} and 0.068% in ICC^{Mean} (both within the climate lobbying sample). This evidence further supports the risk-premium interpretation.

6.3 Further Robustness Checks

A concern might be that—by construction—our measures merely reflect corporate affiliation with political parties. To address this concern, Table IA A7 presents three sets of variants of our return regression, each focusing on the 2010-2022 period. IA Section D provides detailed descriptions of these tests. First, in Columns 1–4, we keep obtaining consistent results when directly controlling for a firm's party connection or its campaign contributions to congressional candidates. Second, in Columns 5–8, we consider the geographical concentration of firms, building on the idea that firms may donate to the dominant party in their state regardless of their climate stance, especially if the operations or products are concentrated in a few states. In these tests, we obtain similar results for firms with dispersed geographical operations (firms that mentioned more than five states in their 10-Ks). Third, in Columns 9–10, we use measures that infer the climate stance using scores constructed by InfluenceMap, that is, we are not using political contribution data. This approach, though relatively coarse, still shows a marginally significant positive return for anti-climate lobbyists, further alleviating the concern that the return effects arise simply from firms' connections to different parties.

Finally, we conduct further robustness tests for Table 6 that address other potential concerns with the analysis. In Table IA A8, we re-estimate a variant of Eq. (5) with climate lobbying detected from text descriptions only. Anti-climate lobbying keeps predicting returns positively. A concern with the estimation of Eq. (5) is that the baseline effects are distorted

[43] These are the GLS model, the residual-income-model-based ICC proposed by Claus and Thomas (2001) (CAT), and the abnormal-earnings-model-based ICCs proposed by Easton (2004) (PEG) and Ohlson and Juettner-Nauroth (2005) (AGR). We obtain all ICC measures from Lee et al. (2021)'s website and thank the authors for sharing their data.

because the sample includes firms that do not lobby on climate topics, thereby not allowing for an apples-for-apples comparison. To address this concern, in Table IA A9, we retain our results if we re-estimate the regressions for the subset of firms with climate lobbying expenses. Table IA A10 shows that results are robust if we (i) replace the measures of the lobbying expenses with indicators for whether a firm does anti- or pro-climate lobbying; (ii) cluster standard errors by industry and year; or (iii) address potential look-ahead bias by delaying the lobbying variables by six months post year-end (i.e., we link lobbying expenses in year t to monthly returns from July of year t+1 to June of t+2).

7 Event Study Evidence

7.1 Description of Events

This section analyzes stock return reactions to two climate-related policy events that unexpectedly shifted investor beliefs. The first event was when Senator Lindsey Graham, a Republican from South Carolina, dropped support for the Waxman-Markey Bill. This bill, officially known as the American Clean Energy and Security Act, was a critical proposal in U.S. climate policy as its goal was to establish a national cap-and-trade system.[44] It was marked by political contention and complex negotiations, and it attracted intense interest across various sectors, leading firms to hire lobbyists on a large scale.[45] The bill passed the House by a narrow margin (219 to 212) on June 26, 2009, but was never brought to the Senate. Critical for this outcome was that Senator Lindsey Graham, an initial supporter of the bill, withdrew his support on April 23, 2010; this signaled its eventual failure.

Under the risk channel, for firms lobbying against the bill, its failure should have increased stock prices, as uncertainty about the immediate regulatory and financial burdens they were

[44]The bill aimed at reducing emissions by 2050 to 83% below 2005 levels, and thereby had the potential to dramatically affect multiple sectors, particularly those reliant on fossil fuels.

[45]Media reports suggested an average of four lobbyists per Congress member, with many aiming to thwart the bill due to concerns over increased operating costs and competitive challenges.

facing no longer existed. On the contrary, for pro-climate firms lobbying in favor of the bill, the event should have led to declines in stock price because of higher uncertainty about the prospects for a green economy that these firms otherwise would have benefited from.

For the second event, we explore the announcement of the Inflation Reduction Act (IRA) on July 28, 2022. The IRA constitutes the most ambitious and comprehensive climate change legislation in the U.S. to date, by aiming for a 41% reduction in emissions by 2030 (compared to 2020). This goal substantially heightened uncertainty about costly regulatory changes for some firms, especially those reliant on fossil fuels. At the same time, the IRA allocated an unprecedented $370 billion towards climate-related expenditures and tax credits, favoring firms that benefit from the green transformation, and attracted substantial lobbying. The IRA's unexpected announcement came on the afternoon of July 27, 2022, when Senator Joe Manchin and Senate Majority Leader Chuck Schumer released a statement supporting it; this came as a surprise due to Manchin's previous pessimistic attitude about a climate bill. Following Deng et al. (2023), we use July 28 as our event date because the announcement became widely known after the market closed on July 27.

Under the risk channel, firms engaged in anti-lobbying should experience a decline in valuations after this event, as investors expect a negative impact on future earnings. Firms lobbying for the bill should be better positioned to capitalize on opportunities arising from the associated regulation, leading to increased investor optimism and higher valuations.

7.2 Event Study Cumulative Abnormal Returns

We estimate the following regression for firm i around each of the two events e:

$$\begin{aligned} CAR_i^e = \beta_0 + \beta_1 ClimateLobbyIntensity_i^{Anti} + \beta_2 ClimateLobbyIntensity_i^{Pro} \\ + \beta_3 \mathbf{X}_i + \delta_j + \epsilon_i, \end{aligned} \tag{7}$$

where CAR_i^e is the cumulative market-adjusted abnormal stock returns (CAR) of firm i over the one-day ([0,1]), two-day ([0,2]) or three-day ([0,3]) window after the event date.[46] $ClimateLobbyIntensity_i^{Anti}$ and $ClimateLobbyIntensity_i^{Pro}$ are firm i's expenditures on anti- or pro-climate lobbying. To accurately reflect expenditures on the specific climate bills, we include only lobbying issues that explicitly reference the full names or bill codes of the two targeted bills when constructing the lobbying measures. We measure these expenses over the one-year period before the event date until one quarter before the calendar quarter that contains the event date. We include industry (δ_j) fixed effects and cluster standard errors at the industry level. As before, we also report specifications using the net lobbying variable. We control for $LobbyIntensity^{Dem}$, $LobbyIntensity^{Rep}$, and the previous firm characteristics.

Table 8 presents estimations of Eq. (7). In Panel A, we report estimates for the Waxman-Markey Bill. In Column 1, firms with higher anti-climate lobbying expenses outperform others. A one-standard-deviation increase in $ClimateLobbyIntensity_i^{Anti}$ is associated with 0.30% higher CARs in the one-day window; this effect rises to 0.39% over the three-day window in Column 3. In contrast, pro-climate lobbying correlates with a 0.30% decrease in stock prices over the three-day window for a one-standard-deviation increase in expenditures. In Columns 4–6, the effects of the net measure confirm our evidence.

In Panel B, the CAR estimates for the IRA contrast sharply with those in Panel A. An increase in $ClimateLobbyIntensity^{Anti}$ by one standard deviation correlates with a 0.29% valuation decrease in the one-day window in Column 1. This effect increases over the two-day window and then weakens. For pro-climate lobbying, the coefficients are positive and large. A one-standard-deviation increase in pro-lobbying is associated with 0.89% higher CARs in the one-day window. As a result, the net anti-climate lobbying measure exhibits negative, statistically significant coefficients in Columns 4–6.

Overall, the return dynamics around the two climate policy events are consistent with

[46] We use a 250-trading day estimation window that ends 25 days before the event date. We require a minimum of 40 non-missing observations within the estimation window and then calculate the market-adjusted CAR for each stock as its returns in excess of CRSP value-weighted market returns.

the risk-premium channel: Stock prices of anti-climate lobbying firms are bid down (bid up) around events that increased (decreased) investor beliefs about climate regulation.

8 Conclusion

In this paper, we quantify corporate anti- and pro-climate lobbying expenses, identify the largest corporate lobbyists and their motives, establish how climate lobbying relates to business models, and document how climate lobbying is priced in financial markets.

Firms spend, on average, $277k per year on anti-climate and $185k on pro-climate lobbying. Anti-climate lobbying is highly concentrated, with firms in Utilities and Petroleum & Natural Gas spending the largest total amounts. Pro-climate lobbying is more dispersed across sectors, but the Utility sector also ranks highest based on the aggregate amount of pro-climate lobbying. Recently, firms have tried to camouflage their lobbying activities by avoiding explicitly mentioning climate issues in lobbying reports. Firms with more carbon-intense business models spend significantly more on anti-climate lobbying. In contrast, there is a positive correlation between green innovation and pro-climate lobbying. More anti-climate spending is associated with more climate-related incidents.

Firms with more anti-climate lobbying earn higher future returns, even after controlling for carbon emissions. The higher returns are not the effect of earnings surprises. Corporate lobbying explains how firms responded to two major climate-related shocks: the prices of anti-climate lobbying firms were bid down (bid up) when the events increased (decreased) investor beliefs about climate-related regulatory uncertainty.

Data Appendix

Variables	Definitions	Sources
$ClimateLobby_{i,t}$	Climate lobbying expenses identified from lobbying reports. A lobbying report is climate-related if it contains climate-related keywords or climate-related bills.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti}$	Anti-climate lobbying expenses identified from lobbying reports. A lobbying report is climate-related if it contains climate-related keywords or climate-related bills. When firm executives donate over 75% of their contributions in the past three years to Republican candidates, the firm's climate-lobbying expenditures in a report are classified as anti-climate lobbying expenses. In cases where executive contribution data is unavailable, we label climate-lobbying expenditures as anti-climate if donation information is available for at least 50% of the lobbyists listed in the report and if each of these lobbyists allocated over 75% of their total historical contributions to Republican candidates.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Pro}$	Pro-climate lobbying expenses. A lobbying report is climate-related if it contains climate-related keywords or climate-related bills. When firm executives donate over 75% of their contributions in the past three years to Democratic candidates, the firm's climate-lobbying expenditures in a report are classified as pro-climate lobbying expenses. In cases where executive contribution data is unavailable, we label climate-lobbying expenditures as pro-climate if donation information is available for at least 50% of the lobbyists listed in the report and if each of these lobbyists allocated over 75% of their total historical contributions to Democratic candidates.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti-Pro}$	Anti- minus pro-climate lobbying expenses. Takes positive (negative) values if anti-climate spending is higher (lower) than pro-climate spending. We identify lobbying reports as climate-related if they contain climate keywords or climate bills.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti\,(Text)}$	Defined as $ClimateLobby_{i,t}^{Anti}$ but with lobbying report identified as climate-related based on climate keywords only.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Pro\,(Text)}$	Defined as $ClimateLobby_{i,t}^{Pro}$ but with lobbying report identified as climate-related based on climate keywords only.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti-Pro\,(Text)}$	Defined as $ClimateLobby_{i,t}^{Anti-Pro}$ but with lobbying report identified as climate-related based on climate keywords only.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti,\,Combo}$	The combined direct and indirect (via trade associations) anti-climate lobbying expenditures.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Pro,\,Combo}$	The combined direct and indirect (via trade associations) pro-climate lobbying expenditures.	OpenSecrets, FEC
$ClimateLobby_{i,t}^{Anti-Pro,\,Combo}$	The combined direct and indirect (via trade associations) anti- minus pro-climate lobbying expenditures.	OpenSecrets, FEC

Variables	Definitions	Sources
$\mathbb{1}(ClimateLobby_{i,t})$	Dummy variable that equals 1 if $ClimateLobby_{i,t}$ is positive.	OpenSecrets, FEC
$\mathbb{1}(ClimateLobby_{i,t}^{Anti})$	Dummy variable that equals 1 if $ClimateLobby_{i,t}^{Anti}$ is positive.	OpenSecrets, FEC
$\mathbb{1}(ClimateLobby_{i,t}^{Pro})$	Dummy variable that equals 1 if $ClimateLobby_{i,t}^{Pro}$ is positive.	OpenSecrets, FEC
$\mathbb{1}(ClimateLobby_{i,t}^{Anti-Pro})$	Dummy variable that equals 1 if $ClimateLobby_{i,t}^{Anti-Pro}$ is positive.	OpenSecrets, FEC
$ClimateLobbyIntensity_{i,t}^{Anti}$	Anti-climate lobbying expenses (in \$) divided by total assets (in \$ million). Winsorized at the 1% and 99.9% levels. We winsorize at 99.9% as only 10% of the observations take positive values.	OpenSecrets, FEC
$ClimateLobbyIntensity_{i,t}^{Pro}$	Pro-climate lobbying expenses (in \$) divided by total assets (in \$ million). Winsorized at the 1% and 99.9% levels.	OpenSecrets, FEC
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	Anti- minus pro-climate lobbying expenses (in \$) divided by total assets (in \$ million). Winsorized at the 1% and 99.9% levels.	OpenSecrets, FEC
$Camouflage\,1_{i,t}^{Anti}$	The proportion of anti-climate lobbying expenditures that is solely identifiable through climate-related bills (titles or codes) mentioned in the issue description. This variable is only available for observations with positive anti-climate lobbying expenditures.	OpenSecrets, FEC
$Camouflage\,2_{i,t}^{Anti}$	The proportion of anti-climate lobbying expenditures that is solely identifiable through abstract bill codes mentioned in the issue description. This variable is only available for observations with positive anti-climate lobbying expenditures.	OpenSecrets, FEC
$Camouflage\,1_{i,t}^{Pro}$	The proportion of pro-climate lobbying expenditures that is solely identifiable through climate-related bills (titles or codes) mentioned in the issue description. This variable is only available for observations with positive pro-climate lobbying expenditures.	OpenSecrets, FEC
$Camouflage\,2_{i,t}^{Pro}$	The proportion of pro-climate lobbying expenditures that is solely identifiable through abstract bill codes mentioned in the issue description. This variable is only available for observations with positive pro-climate lobbying expenditures.	OpenSecrets, FEC
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\to Anti})$	Dummy variable that equals 1 if the firm had no climate lobbying activities from years $t-3$ to $t-1$ but exclusively engage in anti-climate lobbying in year t.	OpenSecrets, FEC
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\to Pro})$	Dummy variable that equals 1 if the firm had no climate lobbying activities from years $t-3$ to $t-1$ but exclusively engage in pro-climate lobbying in year t.	OpenSecrets, FEC
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Pro\to Anti})$	Dummy variable that equals 1 if the firm spent more lobbying expenditures in the pro-climate direction (over 50% of their climate lobbying efforts) than the anti-climate from years $t-3$ to $t-1$ but exclusively engage in anti-climate lobbying in year t.	OpenSecrets, FEC

Variables	Definitions	Sources
$\mathbb{1}(Lobby\ Policy\ Change_{i,t}^{Anti \to Pro})$	Dummy variable that equals 1 if the firm spent more lobbying expenditures in the anti-climate direction (over 50% of their climate lobbying efforts) than the pro-climate from years $t-3$ to $t-1$ but exclusively engage in pro-climate lobbying in year t.	OpenSecrets, FEC
$LobbyIntensity_{i,t}^{Rep}$	Republican-leaning lobbying expenses divided by total assets. Determined based on executive donations and lobbyist contributions. Lobbying expenditures are classified as Republican-leaning when firm executives have directed over 75% of their past three-year contributions to Republican candidates. In the absence of executive contribution data, we designate lobbying expenses as Republican-leaning if donation information is available for at least 50% of the lobbyists listed in the report and if each of these lobbyists allocated over 75% of their total historical contributions to Republican candidates. Winsorized at the 1% and 99.9% levels.	OpenSecrets, FEC
$LobbyIntensity_{i,t}^{Dem}$	Democratic-leaning lobbying expenses divided by total assets, are determined based on executive donations and lobbyist contributions. Lobbying expenditures are classified as Democratic-leaning when firm executives have directed over 75% of their past three-year contributions to Democratic candidates. In the absence of executive contribution data, we designate lobbying expenses as Democratic-leaning if donation information is available for at least 50% of the lobbyists listed in the report and if each of these lobbyists allocated over 75% of their total historical contributions to Democratic candidates. Winsorized at the 1% and 99.9% levels.	OpenSecrets, FEC
$CarbonEmission_{i,t}$	Scope 1 CO2 and CO2 equivalent emissions (tonnes). Winsorized at the 1% and 99% levels.	Trucost
$CarbonIntensity_{i,t}$	Scope 1 carbon emissions (in tonnes CO2e) divided by revenues (in $ million). Winsorized at the 2.5% and 97.5% levels.	Trucost
$Coal/Asset_{i,t}$	Electricity net generation from coal (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA
$NaturalGas/Asset_{i,t}$	Electricity net generation from natural gas (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA
$Oil/Asset_{i,t}$	Electricity net generation from oil (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA
$Nuclear/Asset_{i,t}$	Electricity net generation from nuclear energy (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA
$Renewable/Asset_{i,t}$	Electricity net generation from renewable energy (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA

Variables	Definitions	Sources
$Other/Asset_{i,t}$	Electricity net generation from sources other than coal, natural gas, oil, nuclear energy, and renewable energy (in Megawatt hours) divided by total assets (in $ million). Winsorized at the 1% and 99% levels.	EIA
$GreenPatents_{i,t}$	The number of green patents scaled by the total number of patents. Winsorized at the 1% and 99% levels.	USPTO
$GreenInnovation_{i,t}$	Percentage of green innovation-focused discussions in earnings conference calls (including presentation and Q&A), calculated as the mean of the four quarterly calls. Winsorized at the 1% and 99.9% levels.	Leippold and Yu (2024)
$ClimateIncidents_{i,t}^{Number}$	Number of risk incidents related to climate change, greenhouse gas emissions, or pollution as identified across various news sources. Winsorized at the 1% and 99% levels.	RepRisk
$ClimateIncidents_{i,t}^{Severity}$	Number of risk incidents related to climate change, greenhouse gas emissions, or pollution as identified across various news sources. The measure weights incidents by a severity score. This score ranges from 1 to 3 for each incident, where 3 denotes very severe. Winsorized at the 1% and 99% levels.	RepRisk
$Log(Assets)_{i,t}$	Logarithm of total assets. Winsorized at the 1% and 99% levels.	Compustat
$Log(MarketCap)_{i,t}$	Logarithm of a firm's market capitalization. Winsorized at the 1% and 99% levels.	CRSP
$Log(B/M)_{i,t}$	Logarithm of book equity divided by market capitalization. Winsorized at the 1% and 99% levels.	Compustat, CRSP
$ROA_{i,t}$	Operating income before depreciation divided by total assets. Winsorized at the 1% and 99% levels.	Compustat
$Capex/Assets_{i,t}$	Capital expenditures divided by total assets. Winsorized at the 1% and 99% levels.	Compustat
$Leverage_{i,t}$	Total debt divided by total assets. Winsorized at the 1% and 99% levels.	Compustat
$Tangibility_{i,t}$	Net property, plant, and equipment divided by total assets. Winsorized at the 1% and 99% levels.	Compustat
$SalesGrowth_{i,t}$	Percentages change in sales. Winsorized at the 1% and 99% levels.	Compustat
$ExcessReturn_{i,m,t}$	Monthly excess return (delisting-adjusted raw returns minus the risk-free rate) during each month m. Winsorized at the 1% and 99% levels.	CRSP
$SUE1_{i,t}$	Actual earnings per share (EPS) for the fiscal year t minus the analyst consensus forecast, divided by the fiscal year-end stock price. We measure the analyst consensus as the median analyst forecast constructed eight months before the end of the forecast period. Winsorized at the 1% and 99% levels.	I/B/E/S

Variables	Definitions	Sources
$SUE2_{i,t}$	Actual earnings per share (EPS) for the fiscal year t minus the analyst consensus forecast, divided by the fiscal year-end stock price. We measure the analyst consensus as the median analyst forecast constructed twenty months before the end of the forecast period. Winsorized at the 1% and 99% levels.	I/B/E/S
$ICC^{GLS}_{i,m,t}$	Monthly residual income model-based implied cost of capital (ICC) proposed by Gebhardt et al. (2001) (GLS) utilizing mechanical earnings forecasts from Hou et al. (2012)'s cross-sectional forecast model. Winsorized at the 1% and 99% levels.	Lee et al. (2021)
$ICC^{Mean}_{i,m,t}$	Equal-weighted average of four commonly used implied cost of capital (ICC) variants based on mechanical earnings forecast: the residual-income-model-based ICCs proposed by Gebhardt et al. (2001) (GLS) and Claus and Thomas (2001) (CAT) and the abnormal-earnings-model-based ICCs proposed by Easton (2004) (PEG) and Ohlson and Juettner-Nauroth (2005) (AGR). Winsorized at the 1% and 99% levels.	Lee et al. (2021)
CAR[0,1]/[0,2]/[0,3]	The cumulative market-adjusted abnormal returns over a one-day/two-day/three-day window from the event date. Winsorized at the 1% and 99% levels.	CRSP

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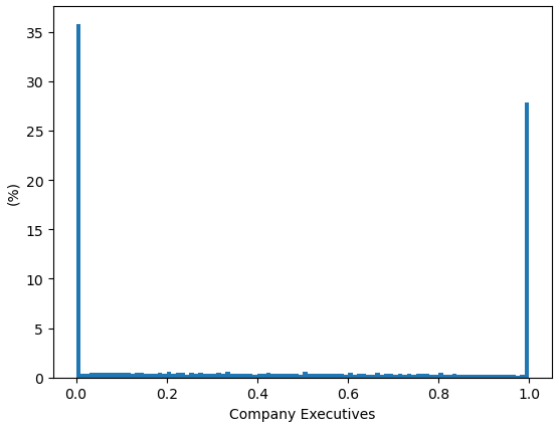
Figure 1: **Contributions to the Democratic and Republican Party**

This figure illustrates contributions by corporate executives or lobbyists to the Democratic or Republican Party. We aggregate contributions from executives of the same firm in the given year. We display the proportion of contributions to the Democratic Party relative to all contributions. As a result, the distribution ranges between 0 (all contributions exclusively to the Republican Party) and 1 (all contributions exclusively to the Democratic Party). Panel A presents contributions by corporate executives (based on their contributions over the past three years). Panel B displays results for lobbyists (based on their total historical contributions).



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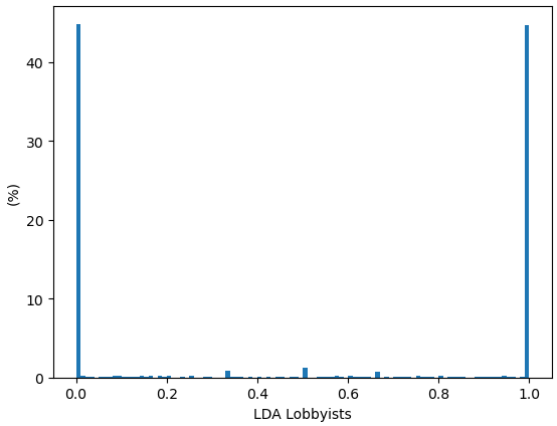

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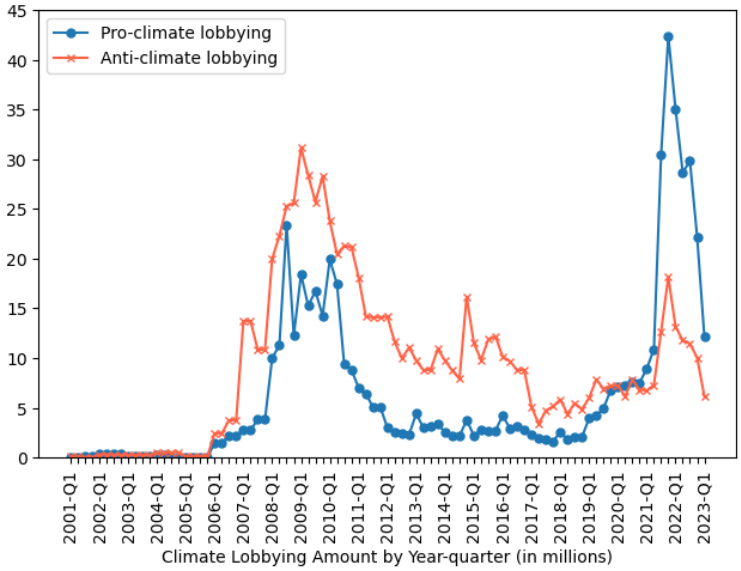
Figure 2: **Time-Series Variation of Corporate Climate Lobbying**

This figure illustrates the variation of spending on pro- and anti-climate lobbying activities across firms over time. Panel A displays the aggregate amounts of anti- and pro-climate lobbying for each quarter, while Panel B shows the count of distinct firms engaged in anti- or pro-climate climate lobbying in each quarter.



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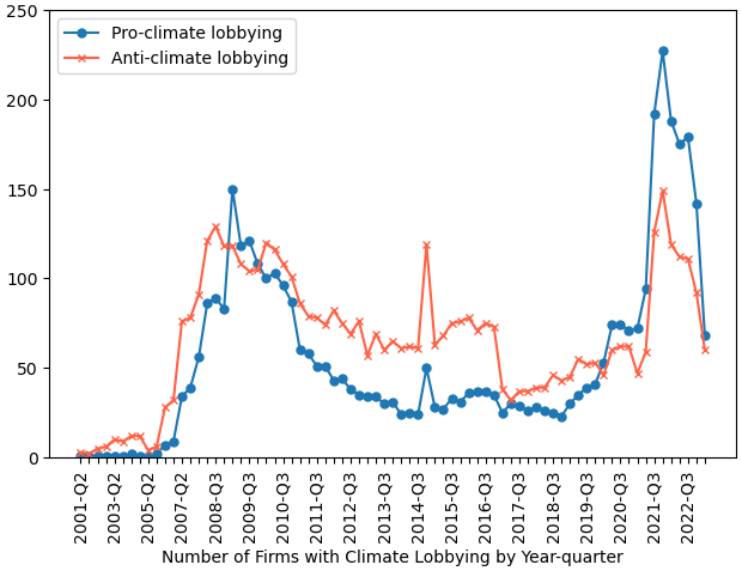
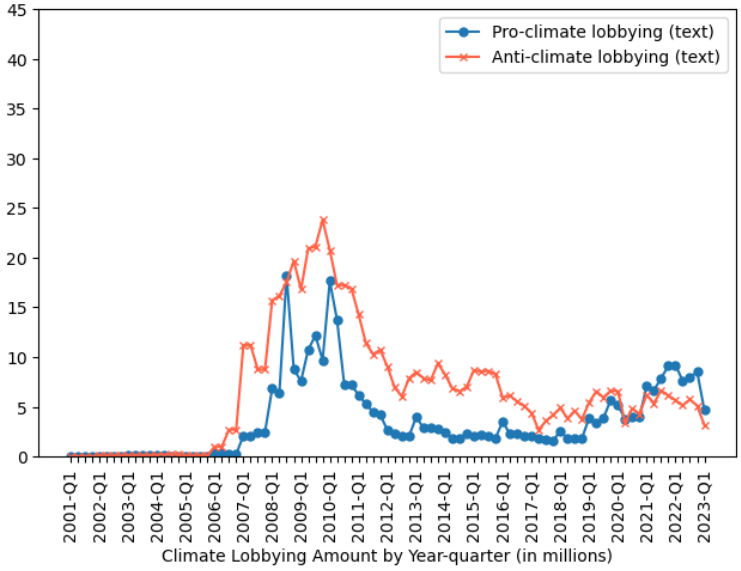


(b)

Figure 3: **Time-Series Variation of Text-Based Corporate Lobbying**

This figure illustrates the variation of spending on pro- and anti-climate lobbying activities across firms over time. Panel A displays the aggregate amounts of anti- and pro-climate lobbying for each quarter, while Panel B shows the count of distinct firms engaged in anti- or pro-climate climate lobbying in each quarter. For this figure, we identify lobbying solely from climate-related keywords.



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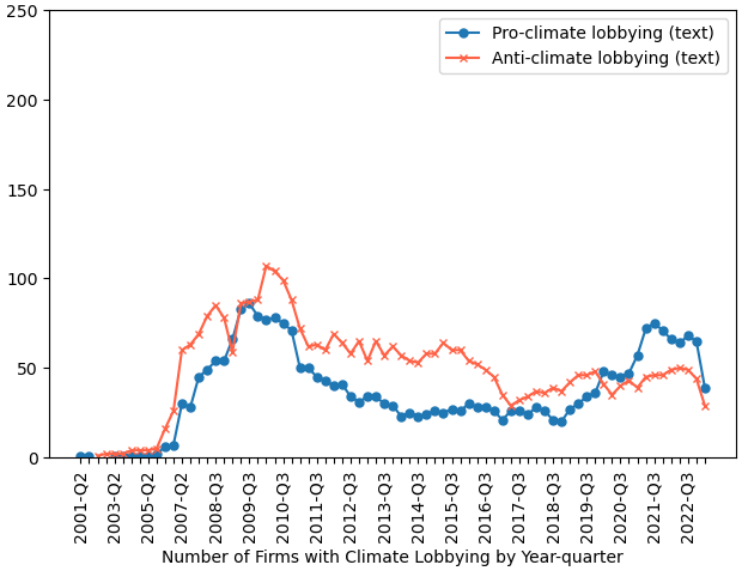
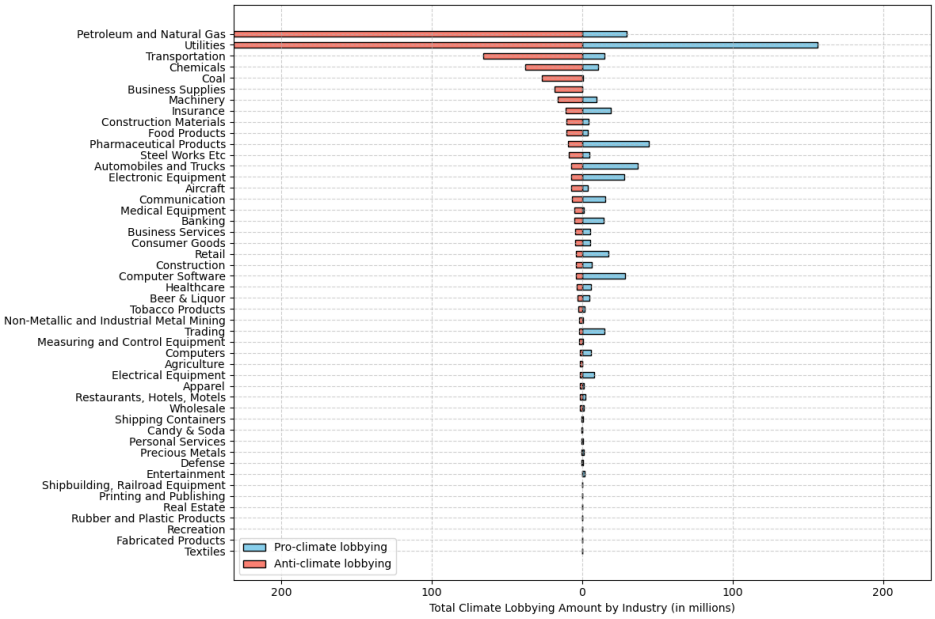


(b)

Figure 4: **Industry Distribution of Corporate Climate Lobbying**

This figure shows the distribution of climate lobbying activities across industry sectors (Fama-French 49 industry classification). Panel A reports the total climate lobbying amount by industry (aggregated across all sample years), while Panel B displays firm-level averages by industry (also across all sample years). Both panels are sorted by the amount of anti-climate lobbying.



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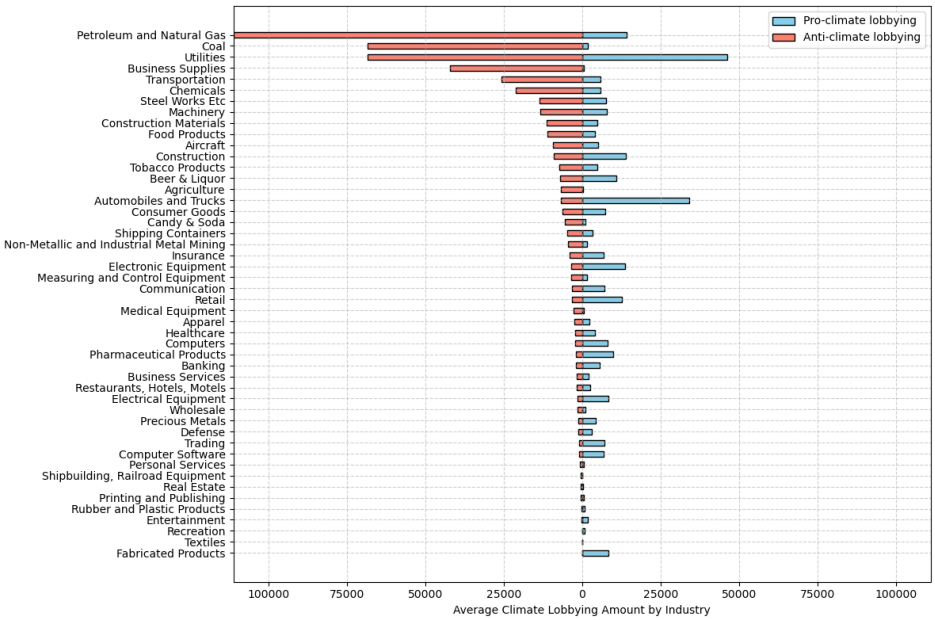
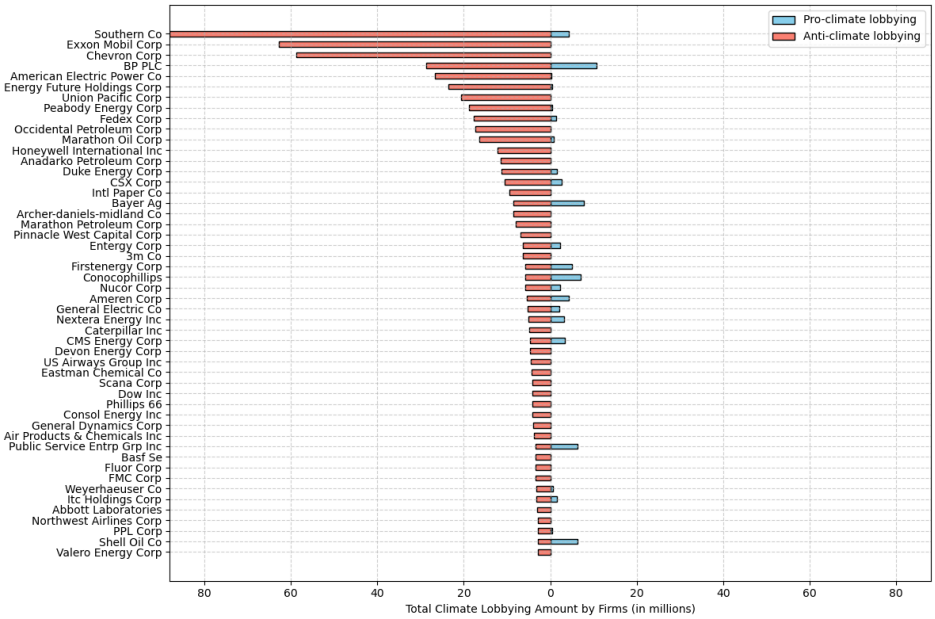


(b)

Figure 5: **Top-50 Firms with Corporate Climate Lobbying Expenses**

This figure shows the distribution of climate lobbying activities across firms. Panel A ranks firms based on the total anti-climate lobbying expense (aggregated across all sample years). In contrast, Panel B ranks firms based on the total pro-climate lobbying expense (aggregated across all sample years). We report the top 50 firms in each ranking.



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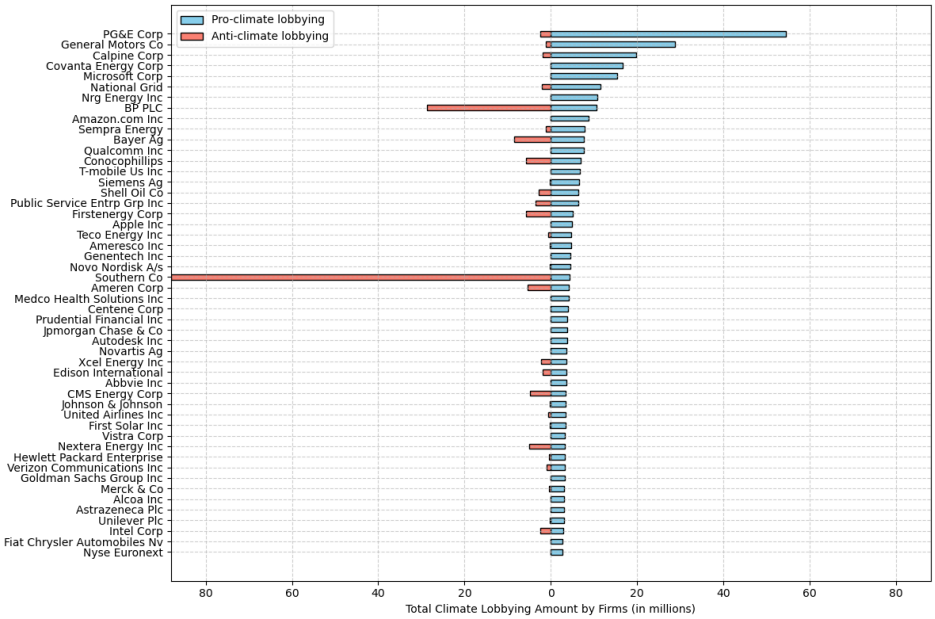


(b)

Figure 6: **Geographical Distribution of Corporate Climate Lobbying**

This figure presents the geographical distribution of spending on climate lobbying across states, calculated based on the firms in a state. States where anti-climate lobbying exceeds 55% of the total climate lobbying amount are marked in red, while the remaining states are shaded in blue with hatching. We allocate firms to states based on the headquarters location.

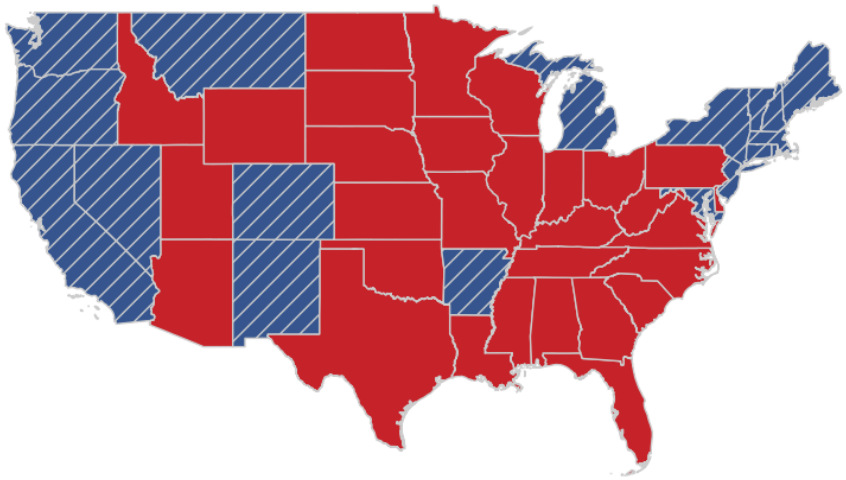


Table 1: **Descriptive Statistics on Corporate Climate Lobbying**

This table presents summary statistics at the firm-year level for key variables used in the analysis. In Panel A, the sample consists of U.S.-listed firms that undertake lobbying. In Panel B, the sample consists of U.S.-listed firms that undertake climate lobbying. We exclude observations with assets less than $5 million. In both panels, the sample period is from 2001 to 2022. Not all variables are available for all years and firms. Variables are defined in the Data Appendix.

Panel A: Full Lobbying Sample						
Variable	Mean	SD	5%	50%	95%	N
$ClimateLobby_{i,t}$	84,707	517,136	0	0	377,500	14,837
$ClimateLobby_{i,t}^{Anti}$	50,847	410,444	0	0	148,475	14,837
$ClimateLobby_{i,t}^{Pro}$	33,860	319,069	0	0	95,000	14,837
$ClimateLobby_{i,t}^{Anti-Pro}$	16,987	522,597	-89,000	0	141,429	14,837
$ClimateLobby_{i,t}^{Anti\,(Text)}$	36,673	351,022	0	0	66,667	14,837
$ClimateLobby_{i,t}^{Pro\,(Text)}$	19,190	255,006	0	0	13,857	14,837
$ClimateLobby_{i,t}^{Anti-Pro\,(Text)}$	17,483	435,042	-5,000	0	63,000	14,837
$ClimateLobby_{i,t}^{Anti,\,Combo}$	66,979	448,645	0	0	256,651	14,837
$ClimateLobby_{i,t}^{Pro,\,Combo}$	38,031	329,741	0	0	120,000	14,837
$ClimateLobby_{i,t}^{Anti-Pro,\,Combo}$	28,948	545,343	-90,000	0	230,438	14,837
$\mathbb{1}(ClimateLobby_{i,t})$	18.3%					14,837
$\mathbb{1}(ClimateLobby_{i,t}^{Anti})$	10.6%					14,837
$\mathbb{1}(ClimateLobby_{i,t}^{Pro})$	8.5%					14,837
$\mathbb{1}(ClimateLobby_{i,t}^{Anti-Pro})$	10.3%					14,837
$ClimateLobbyIntensity_{i,t}^{Anti}$	6.45	187.24	0	0	8.71	14,837
$ClimateLobbyIntensity_{i,t}^{Pro}$	4.41	52.72	0	0	5.04	14,837
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	2.05	194.38	-4.72	0	8.54	14,837
$Lobby_{i,t}^{Rep}$	520,864	1,687,886	0	50,000	2,500,000	14,837
$Lobby_{i,t}^{Dem}$	389,140	1,435,144	0	0	1,980,000	14,837
$CarbonEmission_{i,t}$	3,415,756	11,824,390	1,360	89,332	17,784,227	6,345
$CarbonIntensity_{i,t}$	298.83	849.11	0.54	16.52	2300.50	6,345
$GreenPatents_{i,t}$	9.3%	20.0%	0	0.4%	50.0%	7,041
$GreenInnovation_{i,t}$	0.1%	0.3%	0	0	0.4%	10,069
$ClimateIncidents_{i,t}^{Number}$	3.12	6.02	0	1	13	2,924
$ClimateIncidents_{i,t}^{Severity}$	4.47	8.19	0	2	19	2,924
$Coal/Asset_{i,t}$	228.09	834.92	0	0	1909.83	941
$NaturalGas/Assets_{i,t}$	150.28	418.93	0	1.51	888.59	941
$Oil/Assets_{i,t}$	29.11	186.42	0	0	10.66	941
$Nuclear/Assets_{i,t}$	40.74	215.60	0	0	0	941
$Renewable/Assets_{i,t}$	88.58	307.26	0	0	662.81	941
$Others/Assets_{i,t}$	9.02	35.82	0	0	56.93	941

Panel B: Climate Lobbying Sample						
Variable	Mean	SD	5%	50%	95%	N
$ClimateLobby_{i,t}$	461,718	1,133,138	15,000	140,000	1,898,333	2,722
$ClimateLobby_{i,t}^{Anti}$	277,155	925,088	0	27,770	1,311,307	2,722
$ClimateLobby_{i,t}^{Pro}$	184,564	726,125	0	0	858,182	2,722
$ClimateLobby_{i,t}^{Anti-Pro}$	92,591	1,217,411	-858,182	20,000	1,311,307	2,722
$ClimateLobby_{i,t}^{Anti\,(Text)}$	199,896	799,492	0	0	995,482	2,722
$ClimateLobby_{i,t}^{Pro\,(Text)}$	104,602	587,896	0	0	534,167	2,722
$ClimateLobby_{i,t}^{Anti-Pro\,(Text)}$	95,293	1,012,183	-513,846	0	995,482	2,722
$ClimateLobby_{i,t}^{Anti,\,Combo}$	333,239	996,985	0	46,179	1,540,792	2,722
$ClimateLobby_{i,t}^{Pro,\,Combo}$	199,077	741,386	0	10,000	925,935	2,722
$ClimateLobby_{i,t}^{Anti-Pro,\,Combo}$	134,162	1,258,871	-850,018	29,971	1,492,707	2,722
$ClimateLobbyIntensity_{i,t}^{Anti}$	35.18	436.05	0	0.92	72.11	2,722
$ClimateLobbyIntensity_{i,t}^{Pro}$	24.03	121.18	0	0	84.05	2,722
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	11.15	453.77	-83.51	0.70	69.60	2,722
$Camouflage\,1_{i,t}^{Anti}$	40.3%	44.1%	0	17.6%	100%	1,579
$Camouflage\,2_{i,t}^{Anti}$	27.4%	39.7%	0	0	100%	1,579
$Camouflage\,1_{i,t}^{Pro}$	47.8%	45.7%	0	35.0%	100%	1,260
$Camouflage\,2_{i,t}^{Pro}$	31.1%	40.7%	0	0	100%	1,260
$\mathbb{1}(Lobby\ Policy\ Change_{i,t}^{Zero\to Anti})$	17.23%					2,722
$\mathbb{1}(Lobby\ Policy\ Change_{i,t}^{Zero\to Pro})$	16.13%					2,722
$\mathbb{1}(Lobby\ Policy\ Change_{i,t}^{Pro\to Anti})$	5.44%					2,722
$\mathbb{1}(Lobby\ Policy\ Change_{i,t}^{Anti\to Pro})$	5.40%					2,722
$Lobby_{i,t}^{Rep}$	1,244,247	2,862,627	0	160,000	6,270,321	2,722
$Lobby_{i,t}^{Dem}$	974,465	2,637,507	0	40,000	5,000,000	2,722

Table 2: **Corporate Climate Lobbying, Carbon Emissions, and Green Innovation**

This table presents regressions at the firm-year level relating corporate climate lobbying to carbon emissions (Panel A) and green innovation (Panel B). Control variables (not reported) include $Log(Asset)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$. Independent variables are normalized to have a mean of zero and a standard deviation of one (except those using logs). The sample consists of U.S.-listed firms that undertake lobbying. In Panel A, the sample period is from 2005 to 2020, and in Panel B, the sample period is from 2002 to 2022. t-statistics, reported in parentheses, are based on standard errors clustered by industry. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

Panel A: Carbon Emissions						
	$ClimateLobbyIntensity_{i,t}^{Anti}$		$ClimateLobbyIntensity_{i,t}^{Pro}$		$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Log}(CarbonEmissions_{i,t})$	0.78**		-0.63*		1.41***	
	(2.07)		(-1.84)		(3.28)	
$CarbonIntensity_{i,t}$		2.60***		-0.45**		3.05***
		(4.39)		(-2.19)		(5.30)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	6,094	6,094	6,094	6,094	6,094	6,094
R^2	0.06	0.07	0.01	0.01	0.01	0.02
Panel B: Green Green Patent and Green Innovation						
	$ClimateLobbyIntensity_{i,t}^{Anti}$		$ClimateLobbyIntensity_{i,t}^{Pro}$		$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$GreenPatents_{i,t}$	3.80		5.88**		-2.08	
	(1.43)		(2.01)		(-0.47)	
$GreenInnovation_{i,t}$		4.11		7.03***		-2.92
		(1.16)		(4.10)		(-1.09)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	6,603	9,668	6,603	9,668	6,603	9,668
R^2	0.01	0.02	0.05	0.05	0.01	0.01

Table 3: **Corporate Climate Lobbying and Electricity Generation Characteristics**

This table presents regressions at the firm-year level relating corporate climate lobbying to electricity generation sources for firms operating power plants. Control variables (not reported) include $Log(Asset)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$. Independent variables are normalized to have a mean of zero and a standard deviation of one. A constant is included but not reported. The sample consists of U.S. firms that undertake lobbying. The sample period is from 2001 to 2022. t-statistics, reported in parentheses, are based on standard errors clustered by industry. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ClimateLobbyIntensity_{i,t}^{Anti}$	$ClimateLobbyIntensity_{i,t}^{Pro}$	$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$
	(1)	(2)	(3)
$Coal/Assets_{i,t}$	0.39**	-1.69*	2.09**
	(2.40)	(-1.98)	(2.42)
$NaturalGas/Assets_{i,t}$	0.99**	-3.63	4.62*
	(2.25)	(-1.49)	(1.89)
$Oil/Assets_{i,t}$	-0.33	-2.89**	2.56**
	(-1.67)	(-2.63)	(2.16)
$Nuclear/Assets_{i,t}$	0.31	3.84*	-3.53*
	(0.42)	(1.81)	(-2.02)
$Renewable/Assets_{i,t}$	0.74	0.01	0.73
	(0.76)	(0.00)	(0.29)
$Other/Assets_{i,t}$	-0.50	-1.00	0.51
	(-0.93)	(-0.31)	(0.18)
Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
N	903	903	903
R^2	0.08	0.30	0.25

Table 4: **Corporate Climate Lobbying and Future Climate-related Performance**

This table presents regressions at the firm-year level relating the number and severity of negative climate incidents (Panel A) and Scope 1 carbon emissions (Panel B) (all for the next year) to corporate climate lobbying (in the current year). Control variables (not reported) include $Log(Asset)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$, as well as current year's climate performance (climate incidents for Panel A and carbon emissions for Panel B). Independent variables are normalized to have a mean of zero and a standard deviation of one (except those using logs). The sample consists of U.S.-listed firms that undertake lobbying. In Panel A, the sample includes firm-years with climate incidents in the current or following year, covering the period from 2007 to 2022. In Panel B, the sample period is from 2005 to 2020. t-statistics, reported in parentheses, are based on standard errors clustered by industry. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

Panel A: Future Climate Incidents				
	$\text{Log}(ClimateIncidents^{Number}_{i,t+1})$		$\text{Log}(ClimateIncidents^{Severity}_{i,t+1})$	
	(1)	(2)	(3)	(4)
$ClimateLobbyIntensity^{Anti}_{i,t}$	0.028**		0.032***	
	(2.60)		(2.79)	
$ClimateLobbyIntensity^{Pro}_{i,t}$	0.007		0.008	
	(1.31)		(1.32)	
$ClimateLobbyIntensity^{Anti-Pro}_{i,t}$		0.017**		0.020***
		(2.56)		(3.14)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	2,766	2,766	2,766	2,766
R^2	0.528	0.528	0.498	0.497
Panel B: Future Carbon Emissions				
	$\text{Log}(CarbonEmissions_{i,t+1})$		$CarbonIntensity_{i,t+1}$	
	(1)	(2)	(3)	(4)
$ClimateLobbyIntensity^{Anti}_{i,t}$	0.011**		4.933***	
	(2.41)		(2.77)	
$ClimateLobbyIntensity^{Pro}_{i,t}$	-0.004		-1.367	
	(-0.67)		(-1.15)	
$ClimateLobbyIntensity^{Anti-Pro}_{i,t}$		0.008		3.379
		(1.28)		(1.54)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	5,337	5,337	5,337	5,337
R^2	0.978	0.978	0.964	0.964

Table 5: **Corporate Climate Lobbying and Camouflaged Activities**

This table presents regressions at the firm-year level relating camouflaged climate lobbying intensity to the shift in climate lobbying policy. $\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\rightarrow Anti})$ ($\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\rightarrow Pro})$) is a dummy variable that equals one for firms that transitioned from no climate lobbying activity between years $t-3$ and $t-1$ to exclusively anti- (pro-)climate lobbying in year t. $\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Anti\rightarrow Pro})$ ($\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Pro\rightarrow Anti})$) indicate firms that shifted from predominantly anti- (pro-)climate lobbying (over 50% of their climate lobbying efforts) in the previous three years to exclusively pro- (anti-)climate lobbying in the current year. Control variables (not reported) include $ClimateLobbyIntensity^{Anti}$, $ClimateLobbyIntensity^{Pro}$, $Log(Asset)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$. The sample consists of U.S.-listed firms that undertake anti-climate lobbying in Columns 1-4 and pro-climate lobbying in Columns 5-8. The sample period is from 2001 to 2022. t-statistics, reported in parentheses, are based on standard errors clustered by industry. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$Camouflage\,1_{i,t}^{Anti}$		$Camouflage\,2_{i,t}^{Anti}$		$Camouflage\,1_{i,t}^{Pro}$		$Camouflage\,2_{i,t}^{Pro}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\rightarrow Anti})$	0.15***		0.12***					
	(5.54)		(5.23)					
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Zero\rightarrow Pro})$					0.11***		0.09**	
					(2.76)		(2.30)	
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Pro\rightarrow Anti})$		-0.04		-0.04				
		(-1.03)		(-1.10)				
$\mathbb{1}(Lobby\,Policy\,Change_{i,t}^{Anti\rightarrow Pro})$						0.06		0.05
						(1.47)		(1.56)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,524	1,524	1,524	1,524	1,205	1,205	1,205	1,205
R^2	0.35	0.33	0.26	0.24	0.43	0.43	0.30	0.29

Table 6: **Climate Lobbying and Future Stock Returns**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying. We regress monthly returns of month m from February of year t+1 to January of year t+2 on the lobbying amount of year t. The sample consists of U.S.-listed firms that undertake lobbying. In Columns 1–4, the sample period covers returns from January 2002 to December 2009, and in Columns 5–8, from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ExcessReturn_{i,m,t+1}$							
	2002-2009				2010-2022			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ClimateLobbyIntensity_{i,t}^{Anti}$	-0.30	-0.29			0.44***	0.57***		
	(-0.65)	(-0.48)			(5.92)	(4.24)		
$ClimateLobbyIntensity_{i,t}^{Pro}$	-0.25*	-0.43			-0.34	-0.29		
	(-2.16)	(-1.59)			(-1.31)	(-1.18)		
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$			-0.15	-0.04			0.39**	0.43**
			(-0.44)	(-0.09)			(2.54)	(2.56)
$LobbyIntensity_{i,t}^{Rep}$		-0.03		-0.03		-0.02		-0.01
		(-1.47)		(-1.62)		(-0.96)		(-0.60)
$LobbyIntensity_{i,t}^{Dem}$		0.09		0.09		0.01		0.01
		(1.24)		(1.09)		(0.40)		(0.54)
$Log(MarketCap)_{i,t}$		-0.26***		-0.26***		-0.06		-0.06
		(-3.82)		(-3.85)		(-1.30)		(-1.27)
$Log(B/M)_{i,t}$		0.17		0.17		-0.05		-0.05
		(0.83)		(0.83)		(-0.17)		(-0.17)
$ROA_{i,t}$		1.01		0.99		1.13		1.12
		(0.48)		(0.48)		(0.59)		(0.59)
$Capex/Assets_{i,t}$		-7.01		-7.09		-10.36		-10.33
		(-1.63)		(-1.64)		(-1.75)		(-1.75)
$Leverage_{i,t}$		0.05		0.05		0.80		0.80
		(0.11)		(0.13)		(0.91)		(0.90)
$Tangibility_{i,t}$		1.27*		1.25*		0.59*		0.59*
		(2.01)		(2.01)		(1.87)		(1.88)
$Sales\,Growth_{i,t}$		-0.16		-0.16		-0.77***		-0.77***
		(-0.47)		(-0.47)		(-7.48)		(-7.68)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	50,462	45,420	50,462	45,420	100,016	90,732	100,016	90,732
R^2	0.25	0.25	0.25	0.25	0.32	0.32	0.32	0.32

Table 7: **Robustness Check: Climate Lobbying and Future Stock Returns**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying. We regress monthly returns of months m from February of year t+1 to January of year t+2 on the lobbying amount of year t. Columns 1–4 account for carbon emissions and use a six-month lag in carbon emission measures when matching with stock returns to address concerns regarding the delayed availability of emission data to investors. Columns 5–8 consider both direct climate lobbying expenses and indirect climate lobbying through trade associations. The sample consists of U.S.-listed firms that undertake lobbying. The sample period covers returns from January 2010 to June 2022 for Columns 1–4 (emissions data available through 2020) and extends to December 2022 for Columns 5–8. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ExcessReturn_{i,m,t+1}$							
	Carbon Emissions				Trade Associations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ClimateLobbyIntensity_{i,t}^{Anti}$	0.60***	0.56***						
	(4.43)	(4.41)						
$ClimateLobbyIntensity_{i,t}^{Pro}$	-0.36	-0.36						
	(-1.05)	(-1.03)						
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$			0.49**	0.47**				
			(2.72)	(2.67)				
$ClimateLobbyIntensity_{i,t}^{Anti,Combo}$					0.58***	0.68***		
					(3.86)	(4.42)		
$ClimateLobbyIntensity_{i,t}^{Pro,Combo}$					-0.39	-0.34		
					(-1.54)	(-1.40)		
$ClimateLobbyIntensity_{i,t}^{Anti-Pro,Combo}$							0.48**	0.51**
							(2.56)	(2.90)
$Log(CarbonEmission_{i,t})$	0.02		0.02					
	(0.30)		(0.31)					
$CarbonIntensity_{i,t}$		0.07		0.07				
		(1.09)		(1.16)				
$LobbyIntensity_{i,t}^{Rep}$	-0.05*	-0.04*	-0.04	-0.04		-0.02		-0.02
	(-2.04)	(-1.99)	(-1.50)	(-1.50)		(-1.23)		(-0.76)
$LobbyIntensity_{i,t}^{Dem}$	0.00	0.00	0.01	0.01		0.01		0.02
	(0.07)	(0.07)	(0.12)	(0.12)		(0.46)		(0.64)
$Log(Market\,Cap)_{i,t}$	-0.06	-0.04	-0.06	-0.04		-0.06		-0.06
	(-0.80)	(-0.82)	(-0.79)	(-0.81)		(-1.34)		(-1.30)
$Log(B/M)_{i,t}$	-0.16	-0.15	-0.16	-0.15		-0.05		-0.05
	(-0.56)	(-0.49)	(-0.56)	(-0.49)		(-0.16)		(-0.16)
$ROA_{i,t}$	0.60	0.60	0.60	0.59		1.09		1.09
	(0.28)	(0.28)	(0.27)	(0.28)		(0.57)		(0.57)
$Capex/Assets_{i,t}$	-6.04*	-5.86*	-6.01*	-5.83*		-10.32		-10.29
	(-1.94)	(-2.03)	(-1.94)	(-2.04)		(-1.75)		(-1.75)
$Leverage_{i,t}$	0.35	0.36	0.35	0.36		0.80		0.80
	(0.44)	(0.46)	(0.44)	(0.46)		(0.91)		(0.90)
$Tangibility_{i,t}$	0.76**	0.77***	0.76**	0.77***		0.59*		0.59*
	(2.80)	(3.91)	(2.93)	(4.27)		(1.88)		(1.88)
$Sales\,Growth_{i,t}$	-1.05***	-1.05***	-1.05***	-1.05***		-0.77***		-0.77***
	(-3.11)	(-3.29)	(-3.11)	(-3.28)		(-7.28)		(-7.57)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	59,399	59,399	59,399	59,399	100,014	90,730	100,014	90,730
R^2	0.30	0.30	0.30	0.30	0.32	0.32	0.32	0.32

Table 8: **Event Study Results**

This table presents regressions at the firm level relating cumulative abnormal returns (CARs) around two events to corporate climate lobbying. CARs are calculated as the cumulative market-adjusted abnormal returns over a one-day/two-day/three-day window from the event date. In Panel A, we conduct an event study for the failure of the Waxman-Markey Cap-and-Trade bill, and in Panel B for the announcement of the Inflation Reduction Act (IRA). Control variables (not reported) include $LobbyIntensity_{i,t}^{Rep}$, $LobbyIntensity_{i,t}^{Dem}$, $Log(MarketCap)$, $Log(B/M)$, ROA, $Capex/Assets$, $Leverage$, $Tangibility$, and $Sales\,Growth$. The sample consists of U.S.-listed firms that undertake lobbying. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors that are clustered by industry. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

Panel A: Senator Lindsey Graham Dropps Support for Waxman-Markey Cap-and-Trade Bill						
	CAR[0,1]	CAR[0,2]	CAR[0,3]	CAR[0,1]	CAR[0,2]	CAR[0,3]
	(1)	(2)	(3)	(4)	(5)	(6)
$ClimateLobbyIntensity_{i,t}^{Anti}$	0.54**	0.51*	0.70**			
	(2.17)	(1.76)	(2.06)			
$ClimateLobbyIntensity_{i,t}^{Pro}$	-0.27***	-0.51***	-0.49***			
	(-3.11)	(-6.05)	(-5.24)			
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$				0.29***	0.51***	0.51***
				(4.32)	(6.68)	(7.07)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	519	519	519	519	519	519
R^2	0.13	0.08	0.08	0.14	0.08	0.08
Panel B: Passage of the Inflation Reduction Act						
	CAR[0,1]	CAR[0,2]	CAR[0,3]	CAR[0,1]	CAR[0,2]	CAR[0,3]
	(1)	(2)	(3)	(4)	(5)	(6)
$ClimateLobbyIntensity_{i,t}^{Anti}$	-0.53***	-0.68***	-0.20			
	(-4.58)	(-5.81)	(-1.44)			
$ClimateLobbyIntensity_{i,t}^{Pro}$	1.81*	2.38***	2.60**			
	(1.91)	(2.76)	(2.07)			
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$				-0.78**	-1.01**	-0.67
				(-2.23)	(-2.57)	(-1.42)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	685	685	685	685	685	685
R^2	0.23	0.23	0.16	0.22	0.23	0.15

Internet Appendix

for

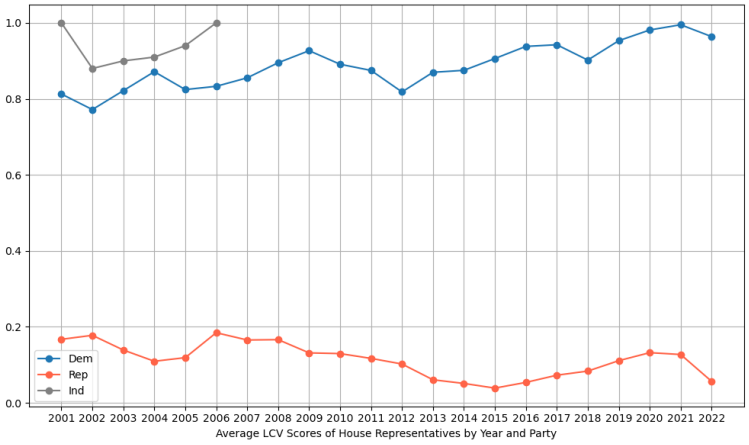
Corporate Climate Lobbying

This Internet Appendix provides additional material supporting the main text.

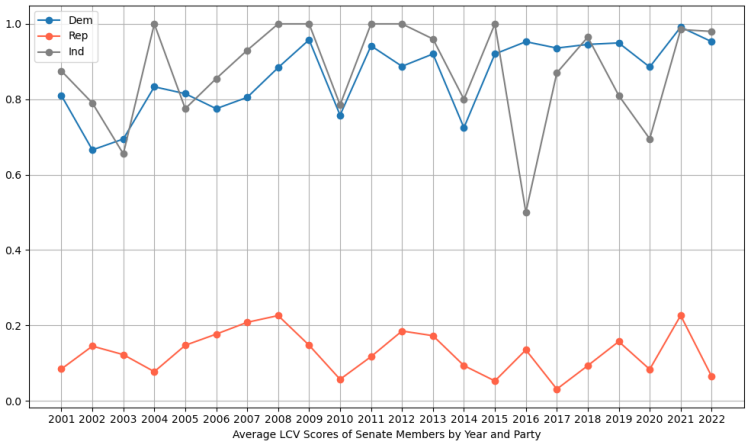
A Additional Figures and Tables

Figure IA A1: **LCV Scores of Congress Members**

This figure presents the average national environmental league of Conservation Voters (LCV) scores of congress members from different political parties over time. In Panel A, we illustrate LCV scores for House representatives; in Panel B, we depict them for Senators. LCV scores range from zero to one and track the voting records of all Congress members on critical environmental, climate, or environmental justice legislation. Higher LCV scores reflect a stronger pro-environmental stance.



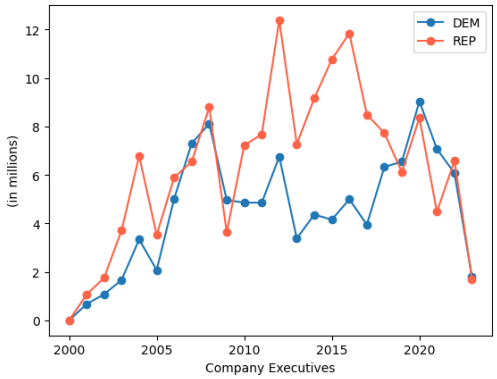
(a)



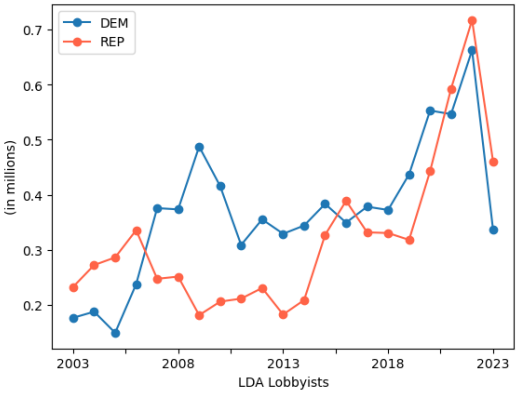
(b)

Figure IA A2: **Contributions to Political Parties**

This figure depicts the time-series variation in contributions to the Republican and Democratic Party from corporate executives (Panel A) and lobbyists (Panel B).



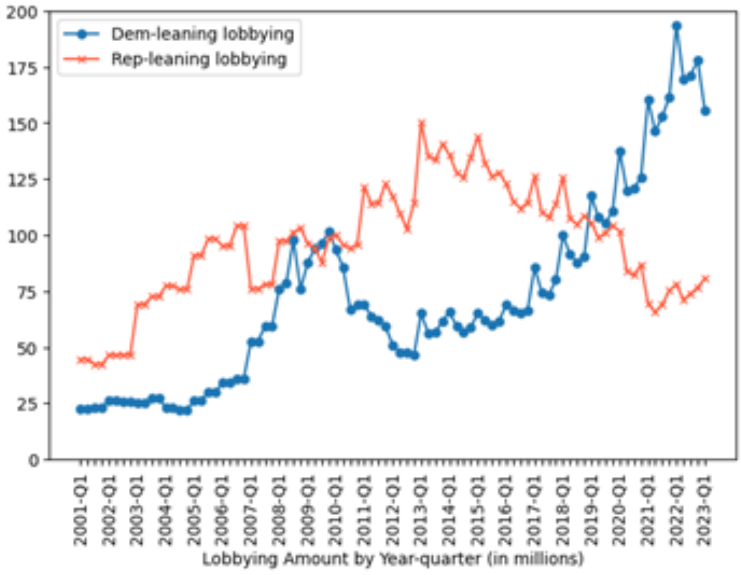
(a)



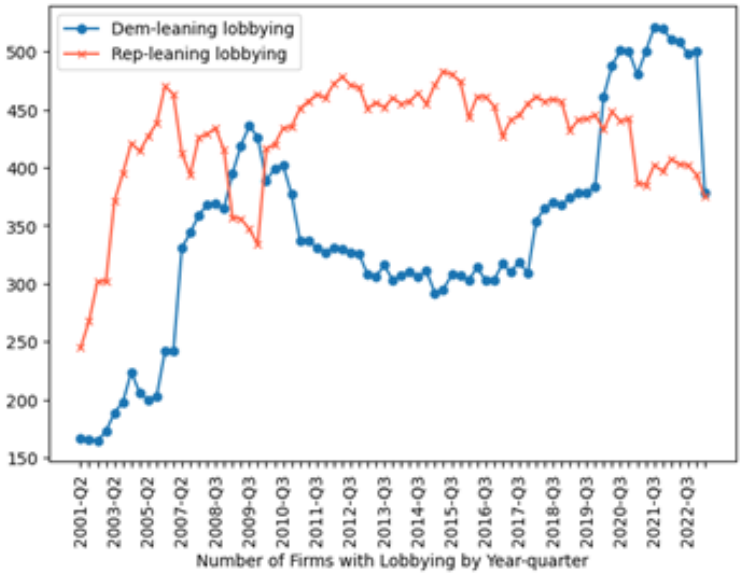
(b)

Figure IA A3: **Time-Series Variation of Corporate Lobbying**

This figure illustrates the variation of spending on lobbying activities across firms over time. Panel A displays the aggregate amounts of lobbying directed to the Republican and Democratic Party for each quarter, while Panel B shows the count of distinct firms engaged in lobbying related to the Republican and Democratic Party in each quarter.



(a)



(b)

Table IA A1: **Sample Formation**

This table presents the sample formation. In Panel A, we report how we match firms listed as clients in lobbying reports to U.S.-listed firms in Compustat. In Panel B, we detail how we identify relevant lobbying reports for inclusion in our sample. Panel C compares the lobbying reports and firm-year observations with political directions detected through executive and lobbyist contributions.

Panel A: Matching from OpenSecret to Compustat					
All client names from OpenSecret	59,979				
Client names from listed firms in Compustat	5,586				
Client names from listed firms in Compustat North America	5,195				
- perfect match			3,875		
- fuzzy/manual match (if no perfect match)			1,320		
Client names from U.S.-listed firms in Compustat North America	4,036				
Panel B: Lobbying Reports					
All lobbying reports from OpenSecrets	1,235,401				
Lobbying reports from firms in Compustat	291,337				
Lobbying reports from U.S.-listed firms	250,598				
Step 1:		*Step 2:*			
Reports related to climate lobbying	25,394	Reports assigned to a political stance	148,411		
		- Republicans		81,352	
		- Democrats		67,059	
Reports related to climate lobbying & assigned to a political stance			15,084		
- Republicans				8,028	
- Democrats				7,056	

Panel C: Comparing Lobbying Directions Inferred from Political Contributions				
	Executives		Lobbyists	
	Lobbying sample	Climate lobbying	Lobbying sample	Climate lobbying
# of lobbying reports	104,498		43,913	
Average lobbying amount	122,692		53,220	
Average # of issue	2.45		1.86	
Average # of lobbyists	3.10		2.15	
# firm-year observations	8,638	1,898	6,199	824
Average anti-climate lobbying amount	78,282	356,272	12,617	94,916
Average pro-climate lobbying amount	52,413	238,539	8,007	60,236

Table IA A2: **Correlations of Key Variables**

This table presents correlations at the firm-year level for key variables used in the analysis. The sample consists of U.S.-listed firms that undertake lobbying. The sample period is from 2001 to 2022. Variables are defined in the Data Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
$ClimateLobbyIntensity_{i,t}^{Anti}$	1.00													
$ClimateLobbyIntensity_{i,t}^{Pro}$	0.00	1.00												
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$	0.96	-0.27	1.00											
$ClimateLobbyIntensity_{i,t}^{Anti\,(Text)}$	0.93	0.01	0.89	1.00										
$ClimateLobbyIntensity_{i,t}^{Pro\,(Text)}$	0.00	0.78	-0.21	0.01	1.00									
$ClimateLobbyIntensity_{i,t}^{Anti-Pro\,(Text)}$	0.89	-0.21	0.91	0.96	-0.28	1.00								
$LobbyIntensity_{i,t}^{Rep}$	0.47	-0.01	0.45	0.42	-0.01	0.41	1.00							
$LobbyIntensity_{i,t}^{Dem}$	0.00	0.20	-0.06	0.00	0.09	-0.03	-0.01	1.00						
$CarbonEmission_{i,t}$	0.19	0.01	0.09	0.23	0.03	0.12	-0.02	-0.04	1.00					
$CarbonIntensity_{i,t}$	0.19	0.03	0.07	0.22	0.06	0.10	-0.02	-0.04	0.70	1.00				
$GreenPatents_{i,t}$	0.06	0.14	-0.03	0.08	0.14	-0.05	0.04	0.08	0.23	0.26	1.00			
$GreenInnovation_{i,t}$	0.09	0.16	-0.05	0.12	0.18	-0.06	0.05	0.06	0.16	0.23	0.43	1.00		
$ClimateIncidents_{i,t}^{Number}$	0.03	-0.03	0.04	0.03	-0.03	0.04	-0.04	-0.05	0.35	0.06	0.08	0.02	1.00	
$ClimateIncidents_{i,t}^{Severity}$	0.04	-0.03	0.05	0.04	-0.03	0.05	-0.04	-0.05	0.36	0.07	0.08	0.01	0.99	1.00

Table IA A3: **Identification of Camouflaged Climate Lobbying**

This table details the identification of camouflaged climate lobbying within lobbying reports. Panel A illustrates how climate-related issues are detected through various methods, leading to two distinct measures of camouflaged lobbying intensity. The *All* column indicates climate issues identified using predefined keywords, climate bill titles, and bill codes. The $Text$ column lists issues detected exclusively by climate keywords. Column $Text + Bill\,Titles$ denotes issues identified through climate keywords or bill titles. Panel B reports the top ten bill titles in lobbying issues that do not contain climate keywords. Panel C illustrates the calculation of climate lobbying amount detected using different methods and the corresponding camouflaged lobbying intensity at the report level.

Panel A: Examples of Climate-related Issues Identified

	Climate		
Issues in lobbying reports	All	Text	Text+Bill Titles
Fuel economy issues, *renewable energy* issues, H.R. 4011 Fuel Economy Harmonization Act, S. 1273 Fuel Economy Harmonization Act.	1	1	1
Provisions in H.R. 2701, the Transportation Energy Security and *Climate Change* Mitigation Act of 2007, relating to short sea shipping, green water practices, and CCF funding.	1	1	1
Issues related to tax credits for alcohol to jet sustainable aviation fuel in H.R. 5376, the Inflation Reduction Act.	1	0	1
Issues related to H.R. 1512; H.R.5376.	1	0	0
Corporate tax reform, Implementation of PL. 115-97, Tax Cuts and Jobs Act, Issues related to online sales tax.	0	0	0

Panel B: Top-10 Bill Titles Mentioned in Lobbying Issue Descriptions without Climate Keywords

Bill codes	Bill titles	Count
H.R. 3684 - 117	Infrastructure Investment and Jobs Act	6162
H.R. 1 - 111	American Recovery and Reinvestment Act of 2009	3891
H.R. 5376 - 117	Inflation Reduction Act	3463
H.R. 2 - 116	Moving Forward Act	1876
H.R. 1512 - 117	Clean Future Act	815
H.R. 910 - 112	Energy Tax Prevention Act of 2011	569
S. 2792 - 117	National Defense Authorization Act for Fiscal Year 2022	562
H.R. 8 - 114	North American Energy Security and Infrastructure Act of 2015	558
H.R. 83 - 113	Consolidated and Further Continuing Appropriations Act, 2015	446
S. 787 - 111	Clean Water Restoration Act	420

Panel C: Calculation of Camouflaged Lobbying Intensity

				Total	Climate				
Report	Client	QTR	Party	Issue/Amount	All	Text	Text+Bill Titles	$Camouflage^1$	$Camouflage^2$
1	ExxonMobil	2021q4	R	6/2390000	3/1195000	0/0	1/398333	1	66.67%
2	ExxonMobil	2009q3	R	15/7160000	7/3341333	5/2386667	5/2386667	28.57%	28.57%
3	Amazon	2008q3	D	1/30000	1/30000	0/0	0/0	1	1
4	Amazon	2022q1	D	23/4970000	4/864348	2/432174	3/648261	50.00%	25.00%

Table IA A4: **Climate Lobbying: Univariate Portfolio Sorting**

This table presents the raw and adjusted returns for portfolios sorted on $ClimateLobbyIntensity^{Anti}$ in Panel A and $ClimateLobbyIntensity^{Anti-Pro}$ in Panel B. We sort firms within their industries (Fama-French 49 industry classifications) and rebalance portfolios at the end of January on the basis of sorting variables measured in year t. We track the performance of portfolios from February of year $t+1$ to January of year $t+2$. Portfolio returns are value-weighted by firms' market capitalizations. For both sorting variables, we first report the average excess returns for each portfolio and then calculate the risk-adjusted returns (α) by performing time-series regressions of portfolios' excess returns on various existing common risk factors. The sample consists of U.S. firms that undertake lobbying in Panel A and climate lobbying in Panel B. The sample period spans from January 2010 to December 2022. t-statistics, reported in parentheses, are based on standard errors using the Newey-West correction for six lags. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

Panel A: $ClimateLobbyIntensity_{i,t}^{Anti}$					
	Zero	Low	High	HML	HMZ
	(1)	(2)	(3)	(4)	(5)
Raw returns	0.86**	0.75**	1.02***	0.28*	0.16
	(2.20)	(2.09)	(3.65)	(1.67)	(0.83)
FF3 + Mom α	-0.08	-0.13	0.20	0.32*	0.28*
	(-0.57)	(-0.71)	(1.31)	(1.96)	(1.84)
FF5 α	-0.25	-0.26	0.15	0.41**	0.40**
	(-1.57)	(-1.52)	(1.06)	(2.21)	(2.32)
HXZ-q α	-0.25*	-0.30	0.07	0.37**	0.32**
	(-1.87)	(-1.39)	(0.47)	(2.06)	(2.08)
Panel B: $ClimateLobbyIntensity_{i,t}^{Anti-Pro}$					
	Low	Medium	High	HML	
	(1)	(2)	(3)	(4)	
Raw returns	0.89***	1.17***	1.36***	0.46**	
	(2.87)	(3.18)	(4.33)	(2.09)	
FF3 + Mom α	-0.04	0.13	0.35**	0.39*	
	(-0.27)	(0.58)	(2.48)	(1.86)	
FF5 α	-0.05	-0.02	0.27*	0.32*	
	(-0.33)	(-0.09)	(1.94)	(1.68)	
HXZ-q α	-0.05	0.11	0.31**	0.35*	
	(-0.32)	(0.46)	(2.14)	(1.71)	

Table IA A5: **Climate Lobbying and Earnings Surprises**

This table reports regression at the firm-year level relating earnings surprises to corporate climate lobbying. $SUE1_{i,t}$ ($SUE2_{i,t}$) is the one-year (two-year) earnings surprises measured as the actual earnings per share minus the consensus (median) analyst forecast eight (twenty) months before the end of the forecast period, scaled by the stock price (and multiplied by 100). The sample consists of U.S.-listed firms that undertake lobbying. The sample period ranges from 2010 to 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$SUE1_{i,t}$		$SUE2_{i,t}$	
	(1)	(2)	(3)	(4)
$ClimateLobbyIntensity_{i,t}^{Anti}$	0.13		-0.14	
	(0.71)		(-1.46)	
$ClimateLobbyIntensity_{i,t}^{Pro}$	-0.08		0.09	
	(-1.45)		(0.47)	
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$		0.09		-0.10
		(1.25)		(-0.83)
$LobbyIntensity_{i,t}^{Rep}$	-0.00	-0.00	0.00	0.00
	(-0.60)	(-0.54)	(0.51)	(0.45)
$LobbyIntensity_{i,t}^{Dem}$	-0.01	-0.01	-0.01	-0.01
	(-1.47)	(-1.44)	(-1.29)	(-1.35)
$Log(Asset)$	0.03	0.03	0.07**	0.07**
	(1.27)	(1.28)	(2.75)	(2.75)
$ROA_{i,t}$	3.75***	3.74***	7.20***	7.20***
	(8.35)	(8.35)	(15.69)	(15.63)
$Capex/Assets_{i,t}$	-4.41*	-4.41*	-3.77*	-3.77*
	(-2.10)	(-2.10)	(-1.90)	(-1.90)
$Leverage_{i,t}$	-0.60***	-0.60***	-0.56***	-0.56***
	(-3.20)	(-3.20)	(-3.43)	(-3.42)
$Tangibility_{i,t}$	0.34	0.34	-0.28	-0.28
	(0.93)	(0.95)	(-0.82)	(-0.83)
$Sales\,Growth_{i,t}$	0.51	0.51	0.95*	0.95*
	(1.76)	(1.76)	(1.99)	(1.99)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	7,293	7,293	6,704	6,704
R^2	0.08	0.08	0.14	0.14

Table IA A6: **Climate Lobbying and Implied Cost of Capital**

This table reports regressions at the firm-year level relating the implied cost of capital (ICC) to corporate climate lobbying for U.S. sample firms. In Columns 1-4, the dependent variables $ICC^{GLS}_{i,t+1}$ are monthly residual income model-based ICC proposed by Gebhardt et al. (2001) (GLS), utilizing mechanical earnings forecasts from Hou et al. (2012)'s cross-sectional forecast model, as constructed by Lee et al. (2021). In Columns 5-8, $ICC^{Mean}_{i,m,t+1}$ is a composite that takes the equal-weighted average of four commonly used ICC variants: the residual-income-model-based ICCs proposed by Gebhardt et al. (2001) (GLS) and Claus and Thomas (2001) (CAT) and the abnormal-earnings-model-based ICCs proposed by Easton (2004) (PEG) and Ohlson and Juettner-Nauroth (2005) (AGR). The sample consists of U.S.-listed firms that undertake lobbying in Columns 1-2/5-6 and climate lobbying in Columns 3-4/7-8. The sample period ranges from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 1000. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ICC^{GLS}_{i,m,t+1}$				$ICC^{Mean}_{i,m,t+1}$			
	Lobbying sample		Climate lobbying		Lobbying sample		Climate lobbying	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ClimateLobbyIntensity^{Anti}_{i,t}$	0.19***		0.28***		0.43***		0.56***	
	(6.86)		(6.03)		(5.62)		(7.50)	
$ClimateLobbyIntensity^{Pro}_{i,t}$	-0.11		-0.01		-0.06		-0.02	
	(-1.26)		(-0.07)		(-0.63)		(-0.15)	
$ClimateLobbyIntensity^{Anti-Pro}_{i,t}$		0.15***		0.15**		0.25***		0.30***
		(3.49)		(2.59)		(3.28)		(3.93)
$LobbyIntensity^{Rep}_{i,t}$	-0.01	-0.01	-0.07**	-0.04	-0.01	-0.01	-0.11***	-0.05
	(-0.96)	(-0.85)	(-2.56)	(-1.67)	(-0.74)	(-0.38)	(-5.19)	(-1.75)
$LobbyIntensity^{Dem}_{i,t}$	0.01	0.01	-0.03**	-0.01	0.02	0.02	-0.03*	0.01
	(0.62)	(0.76)	(-2.71)	(-0.92)	(0.86)	(1.31)	(-2.01)	(1.00)
$Log(MarketCap)_{i,t}$	-0.03***	-0.03***	-0.03***	-0.03***	-0.07***	-0.07***	-0.06***	-0.07***
	(-7.06)	(-7.06)	(-4.44)	(-4.48)	(-8.60)	(-8.54)	(-5.55)	(-5.69)
$Log(B/M)_{i,t}$	0.14***	0.14***	0.14***	0.14***	0.38***	0.38***	0.34***	0.34***
	(16.40)	(16.40)	(12.34)	(12.05)	(21.88)	(21.85)	(16.05)	(15.97)
$ROA_{i,t}$	0.51***	0.51***	0.53***	0.51***	0.45***	0.45***	0.17	0.12
	(7.80)	(7.79)	(3.59)	(3.45)	(3.38)	(3.31)	(0.88)	(0.59)
$Capex/Assets_{i,t}$	-0.20	-0.20	-0.02	-0.01	-0.64**	-0.64**	-0.33	-0.32
	(-1.44)	(-1.44)	(-0.07)	(-0.04)	(-2.24)	(-2.23)	(-0.52)	(-0.49)
$Leverage_{i,t}$	0.07*	0.07*	0.03	0.02	0.17**	0.17**	0.06	0.05
	(2.07)	(2.09)	(0.45)	(0.33)	(2.96)	(3.00)	(0.59)	(0.45)
$Tangibility_{i,t}$	-0.06*	-0.06*	-0.13*	-0.13*	-0.05	-0.04	-0.18	-0.18
	(-1.95)	(-1.94)	(-2.04)	(-2.09)	(-0.70)	(-0.67)	(-1.21)	(-1.22)
$Sale\,Growth_{i,t}$	0.02**	0.02**	0.00	0.00	0.02	0.02	0.06*	0.06*
	(2.27)	(2.28)	(0.06)	(0.14)	(0.81)	(0.83)	(1.91)	(2.10)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	71,710	71,710	16,042	16,042	72,096	72,096	16,071	16,071
R^2	0.43	0.43	0.49	0.49	0.56	0.56	0.61	0.61

Table IA A7: **Climate Lobbying and Future Returns: Political Affiliations**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying for U.S. sample firms. We control for party dummies in Columns 1–2 and executive contributions to each party scaled by assets in Columns 3–4. Columns 5–6 focus on firms mentioning more than five states in their 10-Ks, while Columns 7–8 include state-level headquarters fixed effects. Columns 9–10 employ lobbying measures that infer corporate climate stance from InfluenceMap scores. The sample consists of U.S.-listed firms that undertake lobbying. The sample period covers returns from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year in Columns 1-2 and 5-6. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ExcessReturns_{i,m,t+1}$									
	Political connection				Geographical concentration				InfluenceMap	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$ClimateLobbyIntensity^{Anti}_{i,t}$	0.60***		0.59***		0.46**		0.48***			
	(3.81)		(4.14)		(3.00)		(3.78)			
$ClimateLobbyIntensity^{Pro}_{i,t}$	-0.33		-0.29		-0.70		-0.45			
	(-1.24)		(-1.19)		(-1.39)		(-1.49)			
$ClimateLobbyIntensity^{Anti-Pro}_{i,t}$		0.46**		0.44**		0.57**		0.46**		
		(2.44)		(2.60)		(2.38)		(2.37)		
$ClimateLobbyIntensity^{Anti,\,IM}_{i,t}$									0.61*	
									(1.82)	
$ClimateLobbyIntensity^{Pro,\,IM}_{i,t}$									0.47	
									(0.37)	
$ClimateLobbyIntensity^{Anti-Pro,\,IM}_{i,t}$										0.48
										(1.55)
$RepDummy_{i,t}$	-0.04	-0.04								
	(-0.37)	(-0.34)								
$DemDummy_{i,t}$	0.16	0.17								
	(0.72)	(0.73)								
$ContributionIntensity^{Rep}_{i,t}$			0.02	0.02						
			(1.44)	(1.44)						
$ContributionIntensity^{Dem}_{i,t}$			-0.01	-0.01						
			(-0.77)	(-0.79)						
$LobbyIntensity^{Rep}_{i,t}$	-0.01	-0.00	-0.03	-0.02	-0.00	-0.01	-0.02	-0.02	-0.01	-0.01
	(-0.36)	(-0.11)	(-1.30)	(-0.91)	(-0.12)	(-0.25)	(-0.82)	(-0.69)	(-0.40)	(-0.30)
$LobbyIntensity^{Dem}_{i,t}$	-0.00	0.00	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.00
	(-0.00)	(0.18)	(0.54)	(0.69)	(0.62)	(0.54)	(0.41)	(0.42)	(0.04)	(0.06)
$Log(MarketCap)_{i,t}$	-0.06	-0.06	-0.06	-0.06	-0.14***	-0.14***	-0.15***	-0.15***	-0.05	-0.05
	(-1.38)	(-1.36)	(-1.20)	(-1.18)	(-3.20)	(-3.24)	(-4.55)	(-4.56)	(-1.15)	(-1.07)
$Log(B/M)_{i,t}$	-0.03	-0.03	-0.05	-0.05	-0.05	-0.05	0.07	0.07	-0.05	-0.05
	(-0.13)	(-0.12)	(-0.16)	(-0.16)	(-0.18)	(-0.18)	(0.21)	(0.21)	(-0.17)	(-0.17)
$ROA_{i,t}$	1.18	1.17	1.10	1.09	0.98	0.98	1.22	1.22	0.75	0.77
	(0.64)	(0.63)	(0.58)	(0.58)	(0.54)	(0.54)	(0.63)	(0.63)	(0.41)	(0.42)
$Capex/Assets_{i,t}$	-10.77*	-10.74*	-10.38	-10.35	-13.52	-13.54	-15.43*	-15.43*	-8.97*	-8.85*
	(-1.85)	(-1.85)	(-1.74)	(-1.74)	(-1.75)	(-1.75)	(-2.09)	(-2.09)	(-1.97)	(-1.90)
$Leverage_{i,t}$	0.85	0.85	0.81	0.81	0.76	0.75	0.92	0.92	0.91	0.89
	(0.98)	(0.98)	(0.90)	(0.89)	(0.74)	(0.75)	(1.04)	(1.04)	(1.02)	(0.99)
$Tangibility_{i,t}$	0.63*	0.63*	0.58	0.58	0.99	0.98	1.28**	1.28**	0.64*	0.65*
	(2.08)	(2.10)	(1.76)	(1.76)	(1.52)	(1.49)	(2.22)	(2.24)	(1.94)	(1.94)
$Sales\,Growth_{i,t}$	-0.77***	-0.77***	-0.77***	-0.77***	-0.71***	-0.71***	-0.71***	-0.71***	-0.76***	-0.76***
	(-7.34)	(-7.33)	(-7.46)	(-7.27)	(-4.26)	(-4.32)	(-5.32)	(-5.56)	(-7.88)	(-8.55)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	No	No	No	No	No	No	Yes	Yes	No	No
N	90,733	90,733	90,733	90,733	58,446	58,446	77,511	77,511	84,451	84,451
R^2	0.32	0.32	0.32	0.32	0.30	0.30	0.32	0.32	0.32	0.32

Table IA A8: **Climate Lobbying and Future Stock Returns: Text-based Measures**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying for U.S. sample firms. We regress monthly returns of month m from February of year t+1 to January of year t+2 on the lobbying amount of year t. The sample consists of U.S.-listed firms that undertake lobbying. The sample period covers returns from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ExcessReturns_{i,m,t+1}$			
	(1)	(2)	(3)	(4)
$ClimateLobbyIntensity_{i,t}^{Anti\,(Text)}$	0.58**			
	(2.93)			
$ClimateLobbyIntensity_{i,t}^{Pro\,(Text)}$	-0.32			
	(-0.90)			
$ClimateLobbyIntensity_{i,t}^{Anti-Pro\,(Text)}$		0.48***		
		(3.19)		
$ClimateLobbyIntensity_{i,t}^{Anti\,(Text+Bill\,Titles)}$			0.58***	
			(3.17)	
$ClimateLobbyIntensity_{i,t}^{Pro\,(Text+Bill\,Titles)}$			-0.43	
			(-1.69)	
$ClimateLobbyIntensity_{i,t}^{Anti-Pro\,(Text+Bill\,Titles)}$				0.50**
				(2.82)
$LobbyIntensity_{i,t}^{Rep}$	-0.01	-0.01	-0.01	-0.01
	(-0.52)	(-0.39)	(-0.72)	(-0.55)
$LobbyIntensity_{i,t}^{Dem}$	0.00	0.01	0.01	0.01
	(0.18)	(0.21)	(0.46)	(0.51)
$Log(MarketCap)_{i,t}$	-0.06	-0.06	-0.06	-0.06
	(-1.28)	(-1.27)	(-1.29)	(-1.27)
$Log(B/M)_{i,t}$	-0.05	-0.05	-0.05	-0.05
	(-0.17)	(-0.17)	(-0.16)	(-0.16)
$ROA_{i,t}$	1.13	1.12	1.12	1.12
	(0.59)	(0.58)	(0.58)	(0.58)
$Capex/Assets_{i,t}$	-10.40	-10.38	-10.37	-10.35
	(-1.77)	(-1.77)	(-1.76)	(-1.75)
$Leverage_{i,t}$	0.79	0.79	0.80	0.80
	(0.89)	(0.89)	(0.90)	(0.90)
$Tangibility_{i,t}$	0.60*	0.60*	0.59*	0.59*
	(2.02)	(2.09)	(1.99)	(1.99)
$Sales\,Growth_{i,t}$	-0.77***	-0.77***	-0.77***	-0.77***
	(-6.97)	(-7.85)	(-7.18)	(-7.95)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	90,732	90,732	90,732	90,732
R^2	0.32	0.32	0.32	0.32

Table IA A9: **Climate Lobbying and Future Stock Returns: Climate Lobby Sample**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying. We regress monthly returns of months m from February of year t+1 to January of year t+2 on the lobbying amount of year t. The sample consists of U.S.-listed firms that undertake climate lobbying. The sample period covers returns from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

	$ExcessReturn_{i,m,t+1}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ClimateLobbyIntensity_{i,t}^{Anti}$	0.43***	0.85**						
	(6.79)	(2.38)						
$ClimateLobbyIntensity_{i,t}^{Pro}$	-0.37	-0.12						
	(-1.33)	(-0.30)						
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$			0.40**	0.41				
			(2.32)	(1.47)				
$ClimateLobbyIntensity_{i,t}^{Anti\,(Text)}$					0.67*			
					(2.10)			
$ClimateLobbyIntensity_{i,t}^{Pro\,(Text)}$					-0.21			
					(-0.48)			
$ClimateLobbyIntensity_{i,t}^{Anti-Pro\,(Text)}$						0.46*		
						(2.09)		
$ClimateLobbyIntensity_{i,t}^{Anti\,(Text+Bill\,Titles)}$							0.76**	
							(2.22)	
$ClimateLobbyIntensity_{i,t}^{Pro\,(Text+Bill\,Titles)}$							-0.22	
							(-0.82)	
$ClimateLobbyIntensity_{i,t}^{Anti-Pro\,(Text+Bill\,Titles)}$								0.45*
								(2.08)
$LobbyIntensity_{i,t}^{Rep}$		-0.05		0.03	0.04	0.06	0.00	0.04
		(-0.75)		(0.36)	(0.88)	(1.28)	(0.03)	(0.83)
$LobbyIntensity_{i,t}^{Dem}$		-0.04		-0.01	-0.05	-0.04	-0.03	-0.01
		(-0.64)		(-0.14)	(-0.95)	(-0.82)	(-0.61)	(-0.22)
$Log(MarketCap)_{i,t}$		-0.08		-0.08	-0.07	-0.08	-0.08	-0.08
		(-0.71)		(-0.75)	(-0.71)	(-0.74)	(-0.74)	(-0.74)
$Log(B/M)_{i,t}$		0.18		0.18	0.18	0.17	0.18	0.18
		(0.41)		(0.42)	(0.42)	(0.42)	(0.42)	(0.43)
$ROA_{i,t}$		0.54		0.50	0.44	0.43	0.48	0.49
		(0.20)		(0.19)	(0.16)	(0.16)	(0.18)	(0.18)
$Capex/Assets_{i,t}$		-22.11**		-21.97**	-22.11**	-22.02**	-22.10**	-22.00**
		(-2.83)		(-2.86)	(-2.86)	(-2.86)	(-2.83)	(-2.83)
$Leverage_{i,t}$		2.23		2.25	2.22	2.23	2.22	2.24
		(1.05)		(1.05)	(1.04)	(1.04)	(1.04)	(1.05)
$Tangibility_{i,t}$		1.35		1.35*	1.36	1.36*	1.35	1.35*
		(1.72)		(1.79)	(1.75)	(1.79)	(1.77)	(1.78)
$Sales\,Growth_{i,t}$		-0.20		-0.20	-0.19	-0.19	-0.19	-0.19
		(-0.60)		(-0.60)	(-0.53)	(-0.57)	(-0.57)	(-0.60)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	21,682	20,382	21,682	20,382	20,382	20,382	20,382	20,382
R^2	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39

Table IA A10: **Climate Lobbying and Future Returns: Alternative Settings**

This table reports weighted least square regression at the firm-month level relating excess stock returns to corporate climate lobbying for U.S. sample firms. In Columns 1-2, we regress monthly returns of months m from February of year t+1 to January of year t+2 on dummy variables that each equal one if the respective lobbying amount of year t is positive. In Columns 3-4, we cluster standard errors by industry and year. In Columns 5-6, we regress monthly returns from July of year t+1 to June of year t+2 on the lobbying amount of year t. The sample consists of U.S.-listed firms that undertake lobbying. The sample period covers returns from January 2010 to December 2022. A constant is included but not reported. We multiply the coefficients on the lobbying variables by 100. t-statistics, reported in parentheses, are based on standard errors double clustered by firm and year in Columns 1-2 and 5-6. *** p<0.01, ** p<0.05, * p<0.1. Variables are defined in the Data Appendix.

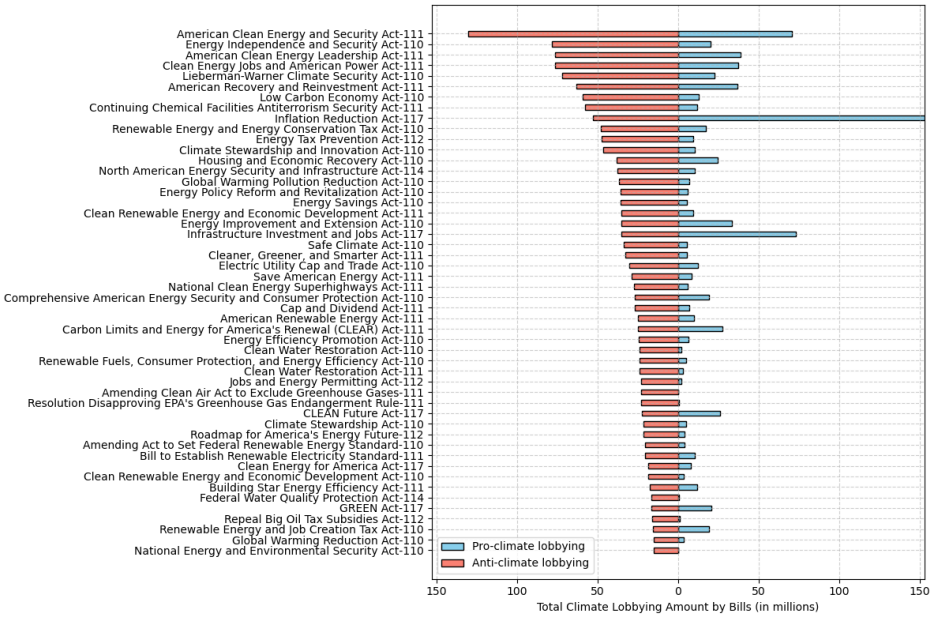
	$ExcessReturns_{i,m,t+1}$					
	Climate Lobbying Dummy		Cluster SE by Industry and Year		Six Months Time Lag	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(ClimateLobby_{i,t}^{Anti})$	0.42**					
	(2.52)					
$\mathbb{1}(ClimateLobby_{i,t}^{Pro})$	0.28					
	(1.24)					
$\mathbb{1}(ClimateLobby_{i,t}^{Anti-Pro})$		0.32*				
		(2.13)				
$ClimateLobbyIntensity_{i,t}^{Anti}$			0.57***		0.54**	
			(3.77)		(2.58)	
$ClimateLobbyIntensity_{i,t}^{Pro}$			-0.29		-0.27	
			(-0.82)		(-1.42)	
$ClimateLobbyIntensity_{i,t}^{Anti-Pro}$				0.43*		0.43**
				(1.97)		(2.64)
$LobbyIntensity_{i,t}^{Rep}$	-0.01	-0.01	-0.02	-0.01	-0.02	-0.01
	(-0.52)	(-0.63)	(-0.86)	(-0.53)	(-0.99)	(-0.79)
$LobbyIntensity_{i,t}^{Dem}$	-0.00	0.00	0.01	0.01	0.02	0.02
	(-0.05)	(0.18)	(0.40)	(0.51)	(0.82)	(1.02)
$Log(MarketCap)_{i,t}$	-0.09**	-0.07	-0.06	-0.06	-0.06	-0.06
	(-2.54)	(-1.42)	(-1.09)	(-1.08)	(-1.32)	(-1.28)
$Log(B/M)_{i,t}$	-0.06	-0.05	-0.05	-0.05	-0.05	-0.05
	(-0.20)	(-0.19)	(-0.17)	(-0.17)	(-0.16)	(-0.16)
$ROA_{i,t}$	1.14	1.12	1.13	1.12	1.16	1.15
	(0.60)	(0.59)	(0.63)	(0.62)	(0.62)	(0.61)
$Capex/Assets_{i,t}$	-10.12*	-9.79	-10.36*	-10.33*	-10.28*	-10.25
	(-1.79)	(-1.72)	(-1.95)	(-1.95)	(-1.79)	(-1.78)
$Leverage_{i,t}$	0.83	0.80	0.80	0.80	0.76	0.76
	(0.97)	(0.92)	(0.88)	(0.89)	(0.81)	(0.82)
$Tangibility_{i,t}$	0.42	0.46	0.59*	0.59*	0.76**	0.76**
	(1.17)	(1.63)	(1.94)	(1.92)	(2.81)	(2.73)
$Sales\,Growth_{i,t}$	-0.73***	-0.75***	-0.77***	-0.77***	-0.89***	-0.89***
	(-6.64)	(-8.42)	(-8.04)	(-7.92)	(-6.66)	(-7.37)
Year-Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	90,732	90,732	90,732	90,732	89,779	89,779
R^2	0.32	0.32	0.32	0.32	0.32	0.32

B Climate-related Bills and Climate Lobbying

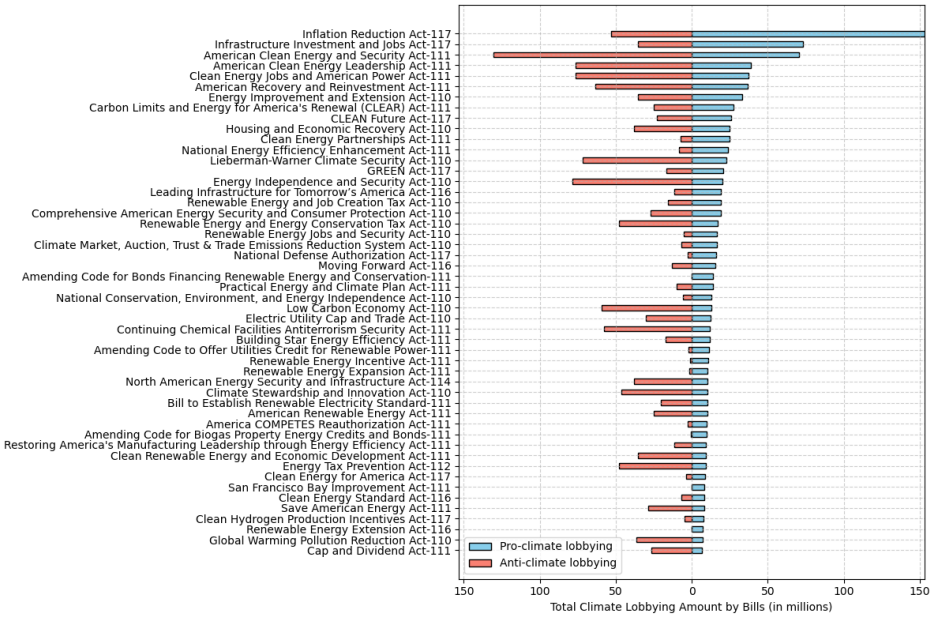
To understand the nature of climate lobbying, we present in Figure IA B1 the most heavily lobbied climate bills. We identify these bills based on the descriptions and bill codes in the lobbying reports. In the figure, we aggregate pro- and anti-lobbying amounts associated with specific bills across the sample. In Panel A, we rank bills based on total anti-climate lobbying expenses. The American Clean Energy and Security Act in the 111th election cycle from 2009 to 2010 received the highest anti-lobbying amounts (approximately $130m). The Energy Independence and Security Act, the Clean Energy Jobs and American Power Act, and the American Clean Energy Leadership Act each attracted over $76m in lobbying. In Panel B, we rank bills based on pro-climate lobbying expenses. Consistent with the time-series variation in Figure 2, the Inflation Reduction Act in the 117th election cycle drew the most pronounced pro-lobbying (about $153m), with the Infrastructure Investment and Jobs Act, also from the 117th cycle, ranking second. The American Clean Energy and Security Act led in anti-climate lobbying, but it also attracted substantial pro-climate lobbying efforts, with around $70m in total (or 54% of the associated anti-climate lobbying expenses).

Figure IA B1: **Top Bills with Corporate Climate Lobbying**

This figure provides an overview of the primary climate bills targeted by corporate lobbying in our sample. Panel A lists the bills receiving the most anti-climate lobbying expenses, while Panel B lists those receiving the most pro-climate lobbying expenses.



(a)



(b)

C Indirect Lobbying via Trade Associations

In addition to direct lobbying, some firms engage in lobbying activities through trade associations, which represent the collective interests of their members and possess expertise in advocating, among other things, for favorable regulations. By pooling resources, trade associations can amplify individual firms' influence on climate policy. A challenge with lobbying expenditures through trade associations is that they are hard to trace back to specific firms, a feature that appeals to some firms wishing to obscure their efforts.

In this section, we elaborate our method to compute indirect corporate climate lobbying via trade associations, which proceeds in three steps: i) we identify quarterly climate lobbying amounts of selected trade associations; ii) we distinguish between pro- and anti-climate lobbying; iii) we allocate lobbying expenditures to member firms and aggregate each firm's indirect lobbying across different trade associations.

C.1 Measuring Climate Lobbying Amounts for Trade Associations

Like firms, trade associations are required to submit lobbying reports according to the Lobbying Disclosure Act of 1995. We focus on a few key trade associations that lead in climate lobbying and outspend others, attempting to capture the most influential climate-related lobbying activities. To select the set of potentially climate-focused trade associations, we start with the list of 87 organizations that were identified by Brulle and Downie (2022). Their list is sourced from mentions in U.S. Senate/House hearings regarding climate change or from reports by the Union of Concerned Scientists. We supplement this list with associations from the InfluenceMap lobby platform, which conducts detailed research on how firms and industry associations engage with climate policy.[1] Additionally, we review the websites of the top five anti- and pro-climate corporate lobbyists in our sample (see Figure 5) and identify any trade associations listed on their political engagement disclosure pages.

These three approaches result in an initial pool of 419 trade associations. After matching with lobbying data from OpenSecrets, we find that 105 of them have filed at least one climate-related lobbying report. After filtering for the political stance and accounting for membership information in the next two steps below, this list narrows down to 73 trade associations. We report these organizations in Figure IA C1; the list includes sector-specific organizations like Airlines for America (transportation), the American Petroleum Institute (oil), and the Solar Energy Industries Association (renewable energy), as well as cross-sector associations like

[1] See https://lobbymap.org/LobbyMapScores

the U.S. Chamber of Commerce or the Business Roundtable. Taken together, these trade associations submitted 17,675 lobbying reports from 2001Q1 to 2023Q1. Of these, 4,877 or 27.6% are climate-related, as identified by climate keywords or bills in their issue descriptions.

C.2 Measuring Political Stance of Climate Lobbying

We assign a climate stance to each trade association's lobbying report using methods similar to those for firms but further augment our approach with information from InfluenceMap and PAC political contributions. We add some additional information for the classification as trade associations, due to their role in shaping policy outcomes, often have a more discernible climate stance (as we explain below, this makes lobbying scores from InfluenceMap and PAC contribution particularly informative). Specifically, we follow a sequential approach. First, InfluenceMap ranks selected industry groups on their climate policy engagement using information from corporate media, CDP responses, and direct consultation with governments. Their evaluation includes communication on climate science, alignment with IPCC on climate action, and stance on climate regulatory needs. They score 53 trade associations from North America on a scale from F to A. If a trade association has an InfluenceMap score above B-, we classify all their lobbying reports as pro-climate; if the score is below E+, they are classified as anti-climate.[2] This step assigns stances to 940 climate lobbying reports. Second, if a trade association has a PAC that donated over 75% of its contributions in the past three years to Republican/Democratic candidates, the lobby reports for that year are marked as anti-/pro-climate; this classification covers an additional 378 reports. Third, we employ individual contribution information from trade association executives and lobbyists, further adding information for 1,293 and 501 reports respectively.

Overall, this sequential approach implies that 3,112 out of the initial list of 4,877 climate lobbying reports can be assigned to a clear political stance: 1,976 reports, with total climate lobbying expenditures of $476.3m, are classified as anti-climate, and 1,136 reports, with expenditures of $98.8m, as pro-climate. When we sum the anti- or pro-climate expenses for each trade association per quarter, we obtain a total of 1,719 observations.

[2]Six associations score above B-. For example, the Zero Emission Transportation Association scores an A for consistently advocating for ambitious regulations to achieve 100% electric vehicle sales in the U.S. by 2030. Conversely, twenty trade associations score below E+. The Independent Petroleum Association of America, for instance, scores an F for actively opposing climate policies related to carbon taxes, renewable standards, and GHG emissions.

C.3 Allocating Lobbying Amounts to Member Firms

We allocate each trade association's quarterly lobbying amount to its member firms. When doing so, we do not simply apply a 1/N approach, but weigh the lobbying amounts by their member firms' annual revenues (they often determine membership dues). Membership information for each trade association is manually collected from their websites as of June 2024.[3] Given that associations with many members may not share a unified climate stance and board members are more likely to influence the association's climate attitude, we collect all members for smaller associations but only board members for those with over 100 members.[4]

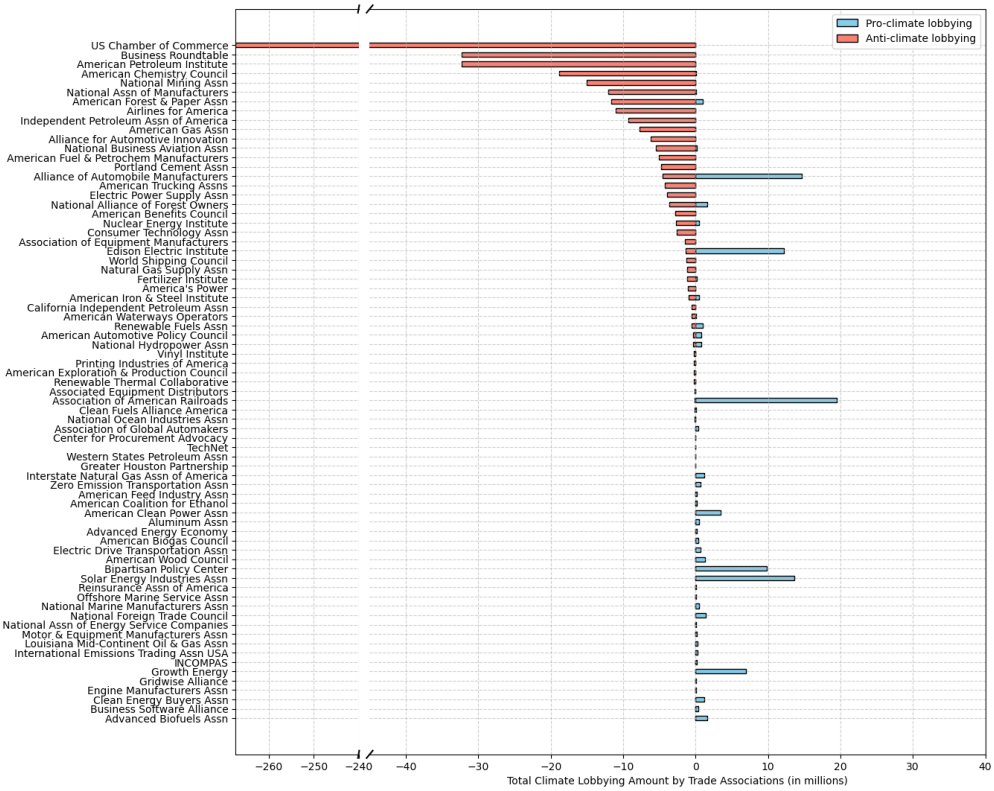
Overall, we identify 3,938 links between trade associations and members, including 2,046 links to global public firms. On average, each trade association contains 28 public firm members, with the National Association of Manufacturers having the most at 169. Each firm belongs, on average, to 1.72 associations, with Shell and BP involved in 14 each. We aggregate quarterly lobby amounts for each firm across different trade associations, resulting in 41,788 firm-quarter observations for 1,075 public firms around the world. Of the 14,837 firm-year observations in our baseline sample of U.S.-listed firms from OpenSecrets, 3,925 conduct climate lobbying through trade associations, with 1,614 engaging in both direct and indirect lobbying.

[3]The structure of this information varies widely: some trade associations list only the board of directors, others include members or leaders, and some provide no information. Members can be U.S. or global public/private companies, publicly owned entities, individuals, or other trade associations, with numbers ranging from 10 to over 1,000.

[4]Here we need to make two assumptions: i) each trade association's membership remains constant from 2001 to 2023, and ii) all lobbying funds for trade associations come from their public firm members, as only their financial data is available. For associations using board members, we supplement with contribution data, linking a trade association to a firm if transactions between their PACs and company PAC/employees exceed $1,000.

Figure IA C1: **Trade Associations with Climate Lobbying Expenses**

This figure shows the distribution of climate lobbying activities across the 73 selected trade associations, ranked by the total anti-climate lobbying expense (aggregated across all sample years).



D Climate Lobbying and Political Party Affiliations

A key assumption in constructing our measures is that firms whose executives or lobbyists predominately support the Republican Party engage in anti-climate lobbying, while those mainly donating to the Democratic Party do more pro-climate lobbying. This raises the concern that our measures, and the detected return effects, indirectly reflect the impact of corporate connections to political parties. Addressing this concern is important as political connections could also influence stock returns. Cooper et al. (2010) demonstrates that firm-level contributions to U.S. political campaigns are positively and significantly correlated with future returns; such connectedness can add value to firms by increasing their likelihood of receiving government investment, procurement contracts, or higher future sales (Duchin and Sosyura, 2012; Goldman et al., 2013; Akey, 2015). In Table IA A7, we report three sets of robustness checks on the return regressions that show that our results are not simply driven by political affiliations.

First, we directly control for corporate political party affiliations in the regressions. We make use of two dummy variables, $RepDummy_{i,t}$ and $DemDummy_{i,t}$, that each equal one if a firm's executives donate more than 75% of their contributions to the respective party over the past three years (this is similar to how we assign the climate stances for climate lobbying reports).[5] Additionally, we calculate annual executive campaign contributions to each party, scaled by total assets, i.e., $ContributionIntensity_{i,t}^{Rep}$ and $ContributionIntensity_{i,t}^{Dem}$. If party affiliations merely drive our results, they will disappear after controlling for these measures. Columns 1–4 in Table IA A7 show that this is not the case.

Second, we exploit information on the geographical concentration of firms. The idea is that firms may choose to donate to the dominant party in their states, especially if their operations are concentrated in a few locations only. In that case, the direction of political contribution might not reflect firms' attitudes towards climate change. To assess this, we re-run in Columns 5–6 our return regressions for firms mentioning more than five states in their 10-Ks; this analysis assumes that dispersed locations reduce the dependency on a single state and a single party.[6] Again, our results are unaffected when applying this refinement.

[5] In our sample, 32% of the observations are linked to the Republican Party, while 27% are affiliated with the Democratic Party. Some observations are not assigned to either party based on executive contributions and their climate stance is based on the contributions of lobbyists in related reports.

[6] This text-based data is kindly shared by Gostlow (2024), using the same method as García and Øyvind Norli (2012). The states mentioned in the 10-Ks often indicate where firms' operations or facilities are located. This measure counts the occurrence of states in items 1, 2, 6, and 7 of the annual reports. We average the state numbers for each firm from 2001 to 2022 and use five (the median value) as a threshold for geographically dispersed companies.

Third, we use InfluenceMap scores to identify the corporate climate stance, thereby using an alternative classification. InfluenceMap provides climate political engagement scores for 524 companies worldwide. We match these firms to Compustat/CRSP and obtain 274 U.S.-listed firms with scores ranging from E- to B+. All climate lobbying reports from firms with scores below the median (D+, D, D-, E+, E, E-) are assigned an anti-climate lobbying stance, while all reports with scores above the median (B+, B, B-, C+, C, C-) are assigned a pro-climate stance.[7] This approach continues to deliver a (marginally significant) positive return effect for anti-climate lobbying.

[7]For example, Tesla and Apple, with scores of B, are determined as pro-climate, while FedEx and Southern Company, scoring D, are anti-climate. In these tests, we exclude observations with climate lobbying but without InfluenceMap scores, focusing only on firms with clear climate stances. Eighty firms, spending \$505m (60% of the total amounts whose stance could be detected by campaign contributions), are linked to anti-climate lobbying. In contrast, 81 firms with an expenditure of \$286m (or 47%) are pro-climate.

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